Ford Motor Company Long Beach Assembly Plant
700 Henry Ford Avenue
Long Beach
Los Angeles County
California

HAER No. CA-82

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Western Regional Office
National Park Service
U.S. Department of the Interior
San Francisco, California 94102

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HISTORIC AMERICAN ENGINEERING RECORD
FORD MOTOR COMPANY LONG BEACH ASSEMBLY PLANT

HAER No. CA-82

Location:	700 Henry Ford Avenue, Port of Long Beach, County of Los Angeles, Caiifornia USGS Quandrangle: Long Beach, CA UTM Coordinates: 11.385290.337030
Date of Construction:	1929-1930
Architect:	Albert Kahn, inc., Detroit Mi
Contractors:	Generai Contractor: Cilnton Construction Co. Brick Supplier: Giadding McBean Company
Present Owner:	Port of Long Beach P.O. Box 570 Long Beach, CA 90801
Present Use:	Demolished, October 1990 - January 1991
Signiflcance:	Ford Motor Company bullt the Long Beach Assembly Plant (Figure i) during 1929-1930 as one of six contemporaneous assembly plants constructed in the United States. The overaii purpose of these plants was to expand production of Ford's Model A, which replaced the Modei T in 1927. Albert Kahn, the architect for the Long Beach Assembiy Plant, also designed the other five Ford Assembly Piants. The Long Beach Assembly Plant was the oniy piant outside of Michigan to have a Pressed Steei Department as an Integrai part of the manufacturing and assembiy process. Kahn's architecturai design incorporated an enormous articuiated structure that retained aesthetic qualities, yet permitted functional use of space. The Long Beach Assembiy Piant operated until 1958 and typified the Ford Assembly Line concept. On a national scaie the Long Beach Assembly Plant reflected a national trend of industrial growth, mass production of consumer goods, and the consumption of those goods.
Project Information:	The former Ford Motor Company Long Beach Assembiy Piant was evaluated eligible to the Nationai Register of Historic Places (NRHP). The Port of Long Beach sought to redeveiop this property, ultimateiy resulting in pians to demoiish and

remove all vestiges of this plant. The Port of Long Beach's application for a 404 Permit from the U.S. Army Corps of Engineers, Los Angeles District, invoked the Section 106 Process. A Memorandum of Agreement (MOA) signed by the U.S. Army Corps of Engineers, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation mandated Historic American Engineering Recordation (HAER) documentation of the the Ford Motor Company Long Beach Assembly Plant. The Port of Long Beach retained Chambers Group, Inc. to document the plant.

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Date: June 1991

PART I HISTORIC NARRATIVE

A. History of Long Beach

In 1863, the year when Henry Ford was born on the outskirts of Detroit, present-day Long Beach could be identified as lying on the old Manuel Nieto Spanish land grant, then divided and in new hands, but still devoted to cattle grazing. The early 1860s were characterized by a succession of floods and a drought that eventually ruined the ranchos causing owners like John Temple to fall into debt and sell their land. Flint, Bixby and Company of San Francisco bought Temple's Rancho Los Cerritos in 1866, and Jotham Bixby managed it primarily to run sheep.[1] Meanwhile Detroit had developed ship building, opened the largest smelter in the United States, produced railroad cars and stoves, and in 1863 celebrated the opening of the Detroit Bridge and Iron Works.[2] Thus, when young Henry Ford walked to Detroit from Dearborn in 1879 to seek work in a machine shop, he was walking into the heartland of industrial U.S.A. Out in California the Bixby options still lay in grazing and in land sales. In 1880 they sold a subdivision of their Los Cerritos Ranch to William E. Willmore.

Some local historians claim that the history of Long Beach began when Willmore, backed by the California Immigrant Union (CIU), organized the "American Colony" with plans to sell five, ten, twenty and forty acre farms to colonists who would raise oranges, lemons, figs, olives, almonds, walnuts, and raise dairy cattle.[3] However, Willmore's colony languished, attracting only 14 colonists by 1882, when the CIU backed out. Undeterred, Willmore reorganized his financial backing and designed Willmore City, which was surveyed by Captain Charles T. Healey. On October 31, 1882, he held a land auction at which 36 lots were sold. However, there were not enough buyers to allow Willmore to keep up with his payments to J. Bixby and Co, and in May 1884 he abandoned the project and moved to Arizona.[4]

Only a month after Willmore left, the Long Beach Land and Water Company formed, and under its direction, Long Beach began to grow slowly and steadily, based on the plans devised by Willmore. In 1884 it had a merchandise store, a newspaper, the Long Beach Journal, and in September 1885 a hotel. When the fledgling city attracted the Methodist Tabernacle and summer camp and the Chautauqua Association summer camp it emerged as a resort town. By 1888 it had a new school building and 120 students. Then in a big step toward economic growth the Long Beach Development Company, a San Francisco syndicate with close links to the Southern Pacific Railroad, bought all the remaining unsold lots in town, the water system, and 800 acres of worthless marshland west of the town, as a condition of the sale.[5] This land was eventually to become the Long Beach Inner Harbor.

Geographically, Long Beach lay in the path of the Los Angeles and San Gabriel rivers which historically found their way to the sea over large muddy areas along the coast. The

meanderings had a profound effect on the Long Beach marshes. Between 1815 and 1876 aione eight major floods changed the course of the Los Angeles River moving its river bed at variances of about haif a mile from the prior river bed. Greater variance was recorded, however, such as in the year 1815 when the river cut a channei across the business district of Los Angeles to enter the ocean by way of Baliona Creek near Santa Monica, many miies north of the harbor district.[6] Until this meandering was controlled, harbor dredging suffered periodic setbacks when tons of silt were deposited in the channels.

Long Beach incorporated on February 10, 1888, and a iarge pier was constructed at Magnolia Avenue. Later that year, the city approached the Atchison, Topeka and Santa Fe Railroad asking it to build a line from Long Beach to Los Angeles to compete with the Southern Pacific's Wiimington branch. However, Charies Crocker of the Southern Pacific Railroad bought controi of the Long Beach Deveiopment Company and the Atchison, Topeka and Santa Fe Raiiroad puiled out. At this same time the iand boom of the 1880s dried up, the Long Beach Hotei burned down and the hope that Charles Crocker might develop the city evaporated with his death later that year. By 1890, a decade after Wiiimore had first planned the city, Long Beach had only grown to a popuiation of 564. The city's fortunes took a turn for the better in 1891 when the Union Pacific Railroad built a iine from Los Angeles to San Pedro via Long Beach and two years later when the Pine Avenue Municipal Pier was constructed.[7]

Since the 1880s Long Beach had developed a modest number of hoteis and boarding houses. Each summer, thousands came for the Chautauqua summer camp followed by the Methodist assembiy. Colonel Charles Rivers Drake retired to Long Beach in 1900 and immediateiy saw the potential to develop the city as a resort. He suggested that an interurban trolley iink to Los Angeles be constructed, and on October 30, 1901, Henry Huntington's Pacific Electric Company won the contract for $9,600. Meanwhile, Drake purchased a miie of the City's beach front to deveiop as a pleasure area. This was to include a bath house and an amusement area that became known as the Pike. Altogether this area became known as the Walk of a Thousand Lights. The first Pacific Electric Red Car ran into Long Beach on July 4, 1902, and such were the crowds that Drake opened the still unfinished bath house. It has been estimated that on that day, when the resident popuiation of Long Beach was only 3-4,000, there were 30-60,000 visitors at the resort![8]

Long Beach continued to develop its resort image and tourist industry over the next decade. In order to reinforce the city's image as a virtuous beach town, laws enforcing the absolute prohibition of alcoholic beverages were passed in 1900, the first in the nation, and they wouid remain in effect until 1933. In 1905 the city had a new pavilion, and in 1906 construction started on the Bixby Hotel. The buiiding collapsed on the construction crew in 1906 but was rebuilt and opened in 1908 as the city's first elegant hotel, the Virginia Hotel. On the Pike, there was Bisley's Spiral Airship, Dodg'ems, dance halls, skating rinks, side shows, skiil games and both movie and performance theaters. The first roller coaster

opened in 1907, to be replaced in 1915 by the Jack Rabbit Racer. In 1929 the Cyclone Racer replaced the Jack Rabbit and continued in operation into the 1960s. It was during this time that Long Beach truly became the "Coney Island of the West." The population of the city grew dramatically during the first decade of the century, from 2,000 in 1900 to 17,809 by 1910, making Long Beach the fastest growing city in the United States.[9]

This period also saw much community service development such as the new City Hall built in 1899. Three new schools were built and the existing three schools, one a high school, were all enlarged. A hospital went up in 1907. Thus, city services kept pace with the growing population. Light industries by 1910 included a brickyard, public laundry, the Peoples Ice and Storage Company, and a planing mill. However, the main focus of economic growth in Long Beach during this period, excluding tourism, was the development of the port and associated industries.

Port development at Long Beach was tied to that at the Port of Los Angeles (then San Pedro), and San Pedro led the way. It had been the shipping point for hides from the days of the missions and during the Mexican rancho era which followed. During the nineteenth century San Pedro grew and prospered. The entrepreneur Phineas T. Banning lightered cargoes from San Pedro Bay to his shallow water port of Wilmington in the early 1870s. He then transported them via his rail line to Los Angeles. In 1872 he joined the City of Los Angeles in persuading Southern Pacific Railroad to extend its Southeast main line from Arizona to Los Angeles, in part by giving them a monopoly on his own Los Angeles-San Pedro Line. With this monopoly the Southern Pacific Company proceeded to charge exorbitant rates for San Pedro to Los Angeles traffic. The rates were so high that it cost more to transport a cargo from San Pedro to Los Angeles than it did to ship that cargo to San Pedro from Hong Kong! With no competition, the gouging continued until 1891 when the Los Angeles Terminal Railway purchased Rattlesnake Island, renaming it Terminal Island, and constructed the "East San Pedro Wharf" on its western tip. This placed its wharf on the main channel of San Pedro Harbor and within waving distance of the Southern Pacific yards. The rail line extended eastward on the island to where it exited onto the east side of the Los Angeles River (Figure 2).[10]

In the 1890s, as a result of losing the San Pedro monopoly, Collis P. Huntington (Henry Huntington's uncle) of the Southern Pacific waged a lengthy battle to have a federally funded, deep water port built at Santa Monica, which the Southern Pacific controlled. San Pedro fought the Southern Pacific for the federal harbor, and Long Beach partially funded the San Pedro cause, recognizing the benefits a nearby port could bring to the small city just five miles away. Repeated engineering studies favored the San Pedro site, and in March 1897 it was decided that San Pedro would be the new deep sea harbor on the West Coast. Officially work started on the federal breakwater on April 26, 1899, although real construction did not begin until July 1900.[11]

In January of 1903 William Galer decided that Long Beach would benefit more from the new port if the city annexed Terminal Island bringing the city limits right up to the Los Angeles Terminal Railway's East San Pedro Wharf and rail line. In 1905 both Long Beach and Terminal Island voted for the annexation, although Terminal Island by only a majority of one vote. Then both San Pedro and Long Beach attempted to annex Wilmington but were thwarted when Wilmington incorporated in September 1905. Los Angeles watched the struggle and soon made its own move to benefit from the deep water port. In November 1906 it annexed a half-mile wide strip of land running south to the port between San Pedro and Wilmington. Within two years, both cities had become parts of Los Angeles. Los Angeles tried to annex Long Beach by a vote in 1905, 1906, 1907, and 1910, each time being rebuffed. But Long Beach was not a passive player in this game of high stakes. She annexed Belmont Heights in 1909, 3.8 square miles north of the city in 1910, three more in 1911 which included a strip of land which sealed off Alamitos Bay and Naples from Los Angeles, and importantly a portion of Signal Hill. The last was acquired because it had water bearing lands, but greater economic consequences lay ahead.[12]

In October 1905 while the fight for political control of the harbor area was at its height, the Los Angeles Dock and Terminal Company, which had no political ties to the City of Los Angeles, purchased the 800 acres of 'worthless' mud flats on Long Beach's west flank for $500,000. Within a year the company had built wharves and dredged Cerritos Slough and the Los Angeles River to create three channels and a 1,400 foot turning basin. By 1907 Long Beach had its own port and succeeded in attracting Craig Shipbuilding Company to the inner harbor. Craig was very successful and drew other manufacturers to the harbor. In 1910 the Pacific Electric Company laid track throughout the harbor while between 1911-1912 Southern California Edison Company built the largest power generating facility in its system in the harbor area. Originally equipped with one oil-fired steam generator, two more were added over the next two years. Fish canneries became a major business in the harbor, largely processing albacore. The Star Drilling Machine Company moved to the harbor in 1912, manufacturing drills and hydraulics for export. In 1913 ten more companies moved into the harbor or its immediate area, including a woolen mill and two iron works.[13]

Long Beach's phenomenal growth continued in the decade after 1910, with the population increasing to 55,000 by 1920. Port expansion continued in spite of floods which caused the river to silt in the channels. The Dock and Terminal Company had financial troubles from the beginning as its spending for dredging and rock work on the jetties was immense. A second flood in 1914 carried so much silt into the harbor that it clogged all the channels, and the company had to leave further dredging work up to the city. The Company went bankrupt in 1916. To manage further harbor upkeep and solve the problems of the many industries there, the city established a Board of Harbor Commissioners in June, 1917.[14]

The port benefited from the opening of the Panama Canal, but it was World War I that fueled major growth. During the war 6,000 people were employed at the harbor and an

additional 3,000 in the canneries. The shipyards built $36 million worth of government ships, including five submarines. The woolen mills produced blankets, overcoats and puttee cloth for the troops, while the canneries produced their food. Curtis Olive Company moved in from Bloomington, California to pack fish as well as its usual olives, pimentos and artichokes. Another new industry that boomed during the war was potash, as the principal supplier to the U.S. had been Germany. One industry harvested sea kelp extracting the chemicals for fertilizers and gunpowder.[15]

The years after World War I saw continued growth in Long Beach. In 1919 President Woodrow Wilson created the Pacific fleet and based it at both the Port of Los Angeles and the Port of Long Beach. The tie between Long Beach and the Navy was to last until the present, and it represented an important boost to the growing city's economy. In the ten-year period beginning with 1920 the following were some of the other new industries introduced to the harbor: Graham Brothers, Standard Gypsum, J.H. Baxter's creosote treatment plant, Cadwallader-Gibson Lumber Company, Patten-Davies Lumber, Southwest Foundry, and Pan Pacific Oil Company of California which engaged in export. Of course all of these were overshadowed by an event on June 23, 1921. On that day Shell Oil's Alamitos No. 1 well hit. This marked the discovery of the Signal Hill oil field, and thanks to the battles for political control in the area during the first decade of the century, Long Beach owned 140 acres of the rich field. By the end of 1922 there were 450 oil derricks on the field producing over 18 million barrels of oil. By the end of 1923 there were 850 derricks producing 85 million barrels, the most the field ever produced in one year. In early 1926 good fortune continued when a Signal Hill well hit natural gas, a discovery that soon supplied the city with 16 million cubic feet of gas per day.[16]

Oil brought wealth and allowed Long Beach to expand public works projects such as building a community hospital, a new high school, and a new park. Town lots were purchased in the hope that oil would be discovered on each, and the population jumped to over 100,000 in 1924.

Major improvements were also made in the harbor. In 1918 the Army Corps of Engineers and the City of Long Beach combined their efforts to dredge a 200 foot wide channel connecting the twin inner harbors of Los Angeles and Long Beach. Cerritos Slough was transformed into Cerritos Channel and regular navigation between the two harbors became possible. In 1923 thanks to the formation of a Flood Control District, the Los Angeles River was diverted into a new concrete channel, permanently solving the siltation problem in the harbor. In 1911 the State of California had made a grant to the City of Long Beach of the tidelands and submerged lands bordering upon and below the mean high tide line for harbor and other public purposes. A similar act was passed in 1925 (and again in 1935) which covered the tidelands bordering the growing city boundaries. These acts made it possible to undertake major development of the outer harbor. In 1924 a $5 million bond issue financed the construction of a 7,100 foot long breakwater and two moles, one to the

east and one to the west which were completed by 1926. Further improvements were financed by a bond issue in 1928. A new municipal wharf was built in the inner harbor, and the outer harbor improvements continued.[17]

With the improved transport and harbor facilities, the city was able to attract nationally known manufacturers. The first was Ford in 1926 who needed a reliable port and railroad connections directly on his site. The port had grown at a steady pace since the time that the Los Angeles Dock and Terminal Company initiated dredging, in spite of the floods and silting, before the Flood Control District was formed. As the above demonstrates industrial growth involved a large spectra of enterprises, from the Edison Company and iron works to a woolen mill. These were industries destined to stay and to support each other, a factor important to Ford as he would want to purchase some parts and supplies locally. Population growth set off by the resort era later responded to Long Beach's fine system of transportation, public services, and public works financed with oil wealth. Ford would find a more than adequate labor force to add to those already on his pay roll at the Los Angeles Plant. An outspoken critic of drinking who allowed no smoking in his plants, he may even have found the city's prohibition laws attractive.

B. History of the Ford Motor Company

The significance of Henry Ford in American history and even in world history is so well recognized that it needs no argument here. Many published works upon Ford the man and works addressed to the history of automobile manufacture technology which include his contributions are readily available, not only in the United States but also abroad. The following is but a brief sketch of his life and his larger industrial complex to serve as a background to the subject Long Beach Assembly Plant and to lend to this section a sense of completeness.

Henry Ford became something of an archetypical American folk hero during his lifetime. One of eight children of William and Mary Ford, he was born on the family farm near Dearborn, Michigan on July 30, 1863. With only eight years of schooling, he went to Detroit at the age of 16 to work in the machine shops there. Three years later he returned to Dearborn, working part-time for Westinghouse Engine Company and spending the rest of his time in his own machine shop. After marrying Clara Bryant, in 1888, the couple moved back to Detroit. On November 6, 1893 their only child Edsel Bryant was born. A month later Ford was made chief engineer at the main Detroit Edison Company plant. With no regular schedule as he was on call, he spent much of his time experimenting with gasoline-powered vehicles. His first vehicle was completed in 1896, and in a move that was to set him apart from other automotive inventors, he sold the "Quadricycle" to finance work on his second vehicle. Over the next seven years Ford continued his experiments, selling the results, until some of his backers formed the Detroit Automobile Company in 1899, which was subsequently renamed the Henry Ford Company in 1901. However, all his

backers eventually deserted him because they wanted to put a car on the market while Ford wanted to perfect a vehicle before marketing it. In 1902 Ford left the company, which subsequently became the Cadillac Motor Car Company.[18]

Ford incorporated a new company, the Ford Motor Company, in 1903 and began operations with $28,000 in cash provided by local people. Determined to produce a car for the ordinary man rather than a rich man's luxury car, he produced his first Model T in 1908, and brought mass production to the world at the company's Highland Park plant in 1913-1914 with a moving assembly line. This broke with all automobile technology of the time by producing a Model T every 93 minutes, compared with the 728 minutes it had taken prior to this revolution in assembly method. The constantly moving line would become standard to American industry in the 20th century. Further development of the technique allowed Ford to produce a Model T every 24 seconds.[19]

In 1915 Ford was selling a runabout for $390 and distributing $16,200,000 in dividends to its stockholders. Henry Ford, who had provided the original car and exerted a strong influence over company policy sought low prices for his cars and high wages for his employees. In 1914 he amazed the entire industrial world by departing from the industry's average wage of $2.34 to a minimum five-dollars a day while reducing hours from nine to eight a day. It was good business, Ford claimed, as then the workers could buy American goods, hopefully Ford cars. Ford became a national hero, a legend. Yet, according to his biographers Nevins and Hill, the affordable car was only one side of his contribution. The motor car did introduce social change, but it was Ford's auto factory, the factory which introduced mass production, that "changed our economic and social life more profoundly than any other single element in the recent history of civilization."[20] The moving assembly line lay at the core of mass production technology: it provided an orderly progression of the car through the shop, it delivered the work to the mechanic, and it demanded and thus brought about a fine analysis of all operations whether it be division of labor or an orderly march of material to the line. In 1928 the Long Beach Ford Plant would introduce Ford's kind of mass production to Southern California.

At the onset of World War I Henry Ford, an adamant peace advocate, was on the brink of a great expansionist project on the River Rouge southeast of Dearborn. Nonetheless, he substituted wartime contracts for car manufacture during the war and turned back his own personal profits on them to the government. During these years he was at logger heads with the other company stockholders over the matter of how to disburse or spend company profits. Ford believed that a company's prosperity depended upon expansion, and he had selected a site on the River Rouge where he could integrate production and assembly. His stockholders wanted their dividends instead. Calling the inactive stockholders anti-social parasites, he bought out all of them in 1919 becoming master of his company. Expansion continued throughout the 1920s, carried his industry out to Long Beach in 1927, and led to continued expansion even after the onset of the Great Depression.

After World War 1 Ford had a new concern. Wartime shortages and price increases demonstrated to him that he needed to control raw materials and transportation. Thus, he purchased a controlling interest in 16 coal mines, 700,000 acres of timberland, a rubber plantation in Brazil, and purchased a fleet of Great Lakes freighters to transport ore from his mines and sand for his newly acquired glass works.

The Rouge Plant Ford laid out encompassed production of auto components such as engines and the chassis, assembly, and complete vertical production of materials. It had its own railroad and a harbor to accommodate ocean going cargo ships. He built the largest foundry in the world there for its time, a steel mill and a sawmill all at the Rouge. Twenty-eight hours after the iron ore arrived it would emerge on a finished automobile, but the ore would also be diverted to component production for the other factories springing up all over the United States and the world. Cargo ships loaded with the parts traveled from the Rouge to the docks of these assembly plants. Thus, harbor access was a prerequisite for any new plant.

In 1926 this large-scale success story was on the brink of decline. Trusting his instinct for the market, Ford had refused to introduce innovations such as the hydraulic brake, six or eight-cylinder engine, or choice of color (black on every car since 1914) . As sales went down Ford lowered the price, but that tactic enjoyed short-lived success. While he still led the field in low-priced cars, his sales were declining as Chevrolet sales grew. Bending to the wishes of his son, Edsel, to company managers, and to dealers all over the country who were facing bankruptcy, Ford finally consented to a new "X-car" design. At the Highland Park plant the 15,000,000th Model T rolled off the line on May 26, 1927 and the last ever on May 27. Calling the "X-car" the Model A, Ford finally announced and began to retool. It took 5 months and a thorough overhaul was required in the 34 United States and 12 overseas assembly plants. Since the industry had no union contracts, that meant months without pay for thousands of workers. Meanwhile, at the Rouge where up to then only engines, chassis, and other parts had been produced, a much improved assembly line was installed in Building B. This would complete all functions at that plant. The new unit was established there in September, 1927 and thus identified the Rouge with the new Model A.

Ford's clinging to the Model T lost him the industry's leadership. The Model A did well, but it was outsold by both the Chevrolet and Plymouth leading Ford to introduce the V-8 in 1932. Except for his foray into the camp of anti-Semitism, 1918-1927, when he attacked the mythical International Jewish Conspiracy, and up until the Depression, Ford left an astonishing record on the American scene. He was recognized as a mechanical and business genius. He taught the industry, leaving the doors to his Highland Park Plant open to all for study and for adaptation to their own factories. Socially responsible, his workers received not only high pay, but industrial safety, a clean and healthful work place, prohibition of discharges by foremen, medical care, a trade school for boys, and the use of company gardens where they could grow vegetables. Ford employed the handicapped, and he was the

only employer in the industry who hired blacks for every manufacturing operation. it was this Henry Ford who built one of the last assembly plants of his expansionary years at the Long Beach Harbor, and it was there that he met a labor force imbued with accounts of all he had done for the American working man.

C. History of the Ford Motor Company, Long Beach

Decision to Buiid in Long Beach, California

On June 29, 1926 when the Long Beach newspapers carried the story that Henry Ford was pianning to iocate an assembly plant in Long Beach, events in Detroit were hardly pointing toward expansion. Ford's percentage of the totai nationally produced cars had steadily fallen from 56 percent in 1921 to 45 percent in 1925. Ford had responded with six different price cuts bringing the cost of the runabout down to $260. The Company managed to keep flrst place in saies among the auto manufacturers, but the chailenge of other companies and cuts in their Ford sale profits were causing ten percent of his car deaiers to go over to Generai Motors each year. Discouraged with the "dead weight of the Modei T" even saies supervisors were switching over. Ford advised retrenchment, and at the San Francisco branch in June, 1926 a slash removed 41 percent of hls saies employees. In Dearborn, Henry Ford had stiii not given in to the pressure for a new model, and was in fact stlll tinkering unsuccessfuiiy with a heavier engine for the Model T.[21]

On the other hand, Henry Ford beiieved that good business depended upon ongoing expansion. To Ford, what we see above simpiy amounted to some pressure to make adjustments while attending to ongoing plans. Henry Ford, and he made ail major decisions, at this time entertained no ideas of cutting back. He was moving ahead. For exampie, the timing for his acquisition of a rubber piantation in Brazii aimost paraiieis that of pianning for and instaliing the Long Beach assembiy plant: 1924 through 1930. Highways in America were expanding, and overali demand was expandlng. The Rouge, with its 159.62 acres of floor space, was aimost completed in character by 1926. Yet, it and the Highiand Park plant couid oniy provide a fraction of the cars he marketed. Whiie the Rouge was under construction so were branch plants. In 1928 there were 35 of these actlve in the United States and others abroad. Ford belleved in decentralization, in cottage industrles, and even castings and motors were to be fabricated elsewhere. As the population and the market moved west, so did Ford Assembiy Piants.[22]

Although California had enjoyed continuous growth ever since goid was discovered, that growth was punctuated by spurts of rapid growth, and one of these was the decade of the 1920s. in 1914 population stood at under 3 miiiion; at 1930 it was five and two-thirds miiiion, most of the increase taking place in the twentles. The growth was unequal, the larger share of it showing up in the south as a redistribution of congressional seats demonstrated. Avid users of the car, Southern Caiifornians geared their culture to it.

Traffic congestion in downtown Los Angeles was acute in 1925. A decade later California would even surpass New York in the number of traffic accident fatalities.[23] As early as 1923 Ford's Western District Manager reported,

> "California is consuming more automobiles per capita than any other similar section, and the Ford Motor Company has given official recognition to the tremendous growth and sales possibilities of this district."[24]

Sales possibilities out west were not limited to California. Ford needed a plant to supply cars to the American Southwest and one that could ship cars to the Orient and south to Mexico as well. The company needed a plant with harbor facilities so that it could bring in parts and materials cheaply and ship out assembled cars the same way, if the long distance market materialized. Long Beach faced out on the Pacific rim. American-Hawaiian Steamship Company was down the Cerritos Channel at Los Angeles Harbor's Dock A. To the east in the Long Beach Harbor were the Dollar Line docks, and with Signal Hill oil money to pay for them, harbor improvements were constant. Long Beach was actively seeking industries to add to those already in place. In addition, the city's oil income kept local taxes low.

Ford had two assembly plants west of Chicago in 1923: one in the San Francisco area and one in Los Angeles. The Los Angeles Ford Plant had been in operation since 1911: first at 12th and Olive Streets and after 1914 at East Seventh Street and Santa Fe Avenue. In January, 1923 Byron L. Graves, Ford Motor Company Manager of all interests west of the Mississippi, told the press that expansion was planned in Los Angeles that would make it the largest factory on the Pacific Coast, a class "A" Ford plant second to none west of Chicago. The floor space would be expanded by 90,024 square feet. A portion of that would be in the existing five story building with a basement while the balance would be two stories. Employing 1,100 workers it would turn out all the runabout, touring, coupe and sedan bodies for the Los Angeles territory as well as coupe and sedan bodies for the San Francisco plant. Enameling ovens would handle its tremendous output of parts and of some 300 cars daily. The Los Angeles Plant at the time had 650 employees turning out 70 coupe and sedan bodies a day, cushions and seat backs, and assembling some 200 cars daily. One of its more important functions was that of maintaining a parts reserve stock worth $1,500,500.[25] According to archival data, an 89,120 square foot addition was completed that spring bringing the total square feet at the plant to 241,946 sq. ft.[26]

We also know that when the Long Beach Plant opened the L.A. plant was still employing only 700 men and producing but 225 cars daily. The 1923 expansion was a temporary expansionary move, because during that same year Ford management was looking for a new and better site to which it could move the entire operation.

Site Selection

Commencing their search in 1923 Byron Graves as District Manager had seen a good number of sites when he talked to his old college friend, Lynn Ballard in March, 1924. Ballard had been Secretary of the Long Beach Chamber of Commerce, but in 1924 he was out of the Chamber and in business in Long Beach. Nonetheless, he listened as Graves reported to him that prices for land in Long Beach were too high, so Ballard turned the matter over to the industrial site committee of the Chamber. The committee chairman, Roy Myers, called Graves suggesting sites, but Graves had seen most of them and found them unsuitable. Myers then asked Graves about the Union Pacific sites, and Graves told him to go ahead and see what he could do. At this Myers got in touch with the City Manager, C.H. Windham and President Carl Gray of Union Pacific. These officials met Graves at his office, and there they began negotiations that would last over two years. In fact, when the final land purchase papers were signed nearly all the original committee men had retired leaving successors in office. Roy Myers was still there, and he observed that Union Pacific was selling an industrial site to Ford below market value and in doing so was doing Long Beach a great favor. The site selected was the third one investigated among the Union Pacific harbor terminal lands. The first Ford looked at was located on the ocean side of the channel, the second to the west of the present site. The one chosen lay east of Badger Avenue with all the waterfront right on the Long Beach Harbor.[27]

Physical and Environmental Setting

The close to 40 acre site was split in jurisdiction, but all in the industrial zone of the harbor, as it is today (Figures 3, 4A). Only 12 acres were in Long Beach, while 28 acres were in Los Angeles. However, the entire water front was in Long Beach.

The setting was ideal for a Ford plant: along the north side lay Cerritos Channel with the new drawbridge to the west of the site. Terminal Island fronted the site across the channel giving it full protection there in the inner harbor. On the east the protected frontage provided for a long unloading dock and enough room for Ford's own turning basin. Northward lay additional land on which to expand, and along the west was the Badger Avenue approach and the Union Pacific railroad tracks. The latter ran in from the north, and spur lines could readily be built into the plant warehouse and alongside the dock. The uninterrupted flat building pad was ideal for the unusual inside acreage of one of Ford's modern one-storied automobile factories. Long Beach's mild weather, much of the time between 60 and 70 degrees Fahrenheit would not demand much protection against extremes in heat or cold. Cargo ships could enter the main channel, turn west at the turning basin, and come directly into the Ford dock. Soon after entering the main channel, they would have passed the Edison Plant. Thomas Edison was Henry Ford's close friend.

One day the geology of the area would be of particular importance to the Ford Motor Company. It consisted of generally low-lying terrain with alluvium and terrace deposits of the Los Angeles River and ancestral streams covering the underlying, older, marine sedimentary units. These tertiary strata, some 7,000 to 11,000 feet thick, consisted of Pliocene and Upper Miocene age marine shales, siltstones and sandstones. Anticlinally folded strata here had been responsible for the accumulation of a vast amount of petroleum in the huge Wilmington oil field (CA-82-A-51 and CA-82-A-52). It was judged to be 11 miles long and three miles wide. Oil pumped from the Wilmington field would eventually cause subsidence, sinking of the land, of nearly 30 feet over the crest of the anticline.[28] When Ford selected the site no one had any idea that such a serious problem lay in the future.

Meeting Ford's Requirements for a Plant Site

Aside from the then unknown subsidence factor described above, the Long Beach site offered Ford just about all it could ask for in locating a branch plant. As for water, Long Beach had plenty. Between water brought south from the Owens River Valley, east of the Sierra Nevada Mountains, and that scheduled to be brought over to southern California after constructing dams on the Colorado River, the water supply appeared to be unending. In 1928 the Metropolitan Water District of Southern California was formally organized and ultimately joined by cities such as Long Beach. The District plans were so well laid that even at this writing (1991) the huge megalopolis of the south still functions well on that supply. Incoming power was also plentiful.[29] An Edison Power Plant lay just across Terminal Island from the selected site. Further, as Ford must have known in 1926 when it bought the land, power generated at the Colorado Hoover Dam would soon be available, and it in fact came through to Long Beach in October 1936.[30]

As for construction materials, we have only partial documentation on their sources, but Long Beach had its own brick yards as seen above in the history of its industries. Limestone deposits are common in California, and a major natural deposit was early developed in Orange County just to the south of Long Beach. There would be no need for Ford to ship this from the east. Two steel makers dominated the California market in 1923: Bethlehem and Columbia. In 1926 the Pacific Steel Company announced that it would establish a plant at Long Beach. Bethlehem bought out Columbia and its facilities at Torrance in 1929. Steel, too, was available.[31] Local labor and construction workers from the state at large could be called on. The constant flow of population into California provided labor not only for jobs such as factory construction but for greater projects such as Shasta Dam and Boulder (Hoover) Dam on the Colorado River. The construction labor pool in those years was mobile and plentiful.[32]

Contract and Purchase

Negotiations for the land purchase begun in March, 1924 culminated in a three-way contract signed by the Long Beach City Manger Charles S. Henderson, Edsel Ford, President of the Ford Motor Company, and Union Pacific. Accordingly, Ford would construct on a 39.370 acre site a building covering a ground area of not less than 350,000 square feet of one or more stories, of brick or concrete construction. Said building, including the roof, should be of fire resistive material and conform to the building requirements of Long Beach. Ford agreed to employ approximately 1200 men at the plant. The Union Pacific agreed to construct streets, sanitary sewers, storm drains, water and gas mains, provide trackage at its own expense, and remove the tracks which then crossed over the property. The Ford Company would construct a slip from its frontage on the connecting channel into the side of its own property. The City would dredge the Cerritos Channel, Ford's connecting channel to the main channel, to a width of 600 feet along the Ford frontage and would maintain the channel's depth at thirty-two feet from the Ford company's docks to the sea. The estimated 750,000 yards of dredged material would be deposited on the Ford site for the purpose of raising it several feet. The site enjoyed a frontage of 1300 feet on the Cerritos Channel and 2,619 feet on Badger Avenue. The City, too, would supply the principal utilities.

Before this is done the Ford Company would prepare the foundations for its immense building by driving piling into the ground as it stood, and by pouring concrete piers, after which the big fill would be made. Work of dredging the channel was undertaken and completed together with the dredging of the Ford slip and turning basin on the east side of the plant by June, 1927. The material taken from the slip was also pumped into the Ford fill.[33]

Long Beach citizens were jubilant.

The Long Beach Community and Ford Look Ahead

When the decision to build a factory in Long Beach was officially announced, the city's leading newspaper wrote:

> "The coming of the Ford Factory is the finest thing which ever has happened in Long Beach. The City Council is to be commended for its prompt action in authorizing the City Manager to sign the contract. The establishment of this factory is the beginning of the actual realization of the dreams of the old-time builders of the city and the harbor. Other industries will follow in its path as sure as daylight follows night."[34]

Charles Drake, owner of the elegant Virginia Hotel in Long Beach, declared the above the day after the Ford contract was signed. His was one of twenty testimonials that confirmed the optimism sweeping the city. The front page of the leading newspaper could not have been formatted with more excitement if war had broken out on the west coast. The leading theme was that of growth and dollar income for the city. Henry Ford was responsible for the fantastic growth of Detroit, and now he had picked Long Beach as the location for his greatest enterprise on the Pacific Coast. He had placed his stamp of approval on what Long Beach had to offer to industry and commerce, and since his judgement was recognized everywhere as preeminently sound, other industries were sure to build in Long Beach. Union Pacific alone had 600 acres at the harbor reserved for manufacturing sites. The Ford company was the first to utilize one of their locations. Mr. Capek, a company representative, said that Henry Ford personally had been involved in the negotiations over the past three years.

Capek stressed that time was of the essence, as Ford was losing money every day they stayed in the Los Angeles plant which was expensive to operate. Of the 700 men employed in the Los Angeles plant, 95 percent were married. Thus, they would bring families and buying power to Long Beach. The payroll there was $140,000 a month, and with the increase to 1200 employees at Long Beach the income to the employees, and thus to the city, would be $250,000 a month, $3 million a year. Close to 6,000 new people would be living in the city, buying homes, and patronizing the merchants. And the realtors were ready for them the day the contract was signed with full-page ads offering a lift to their development in Belmont Park in a private car with no obligation to buy. Headlines offered the hope that Henry Ford would also build an airplane factory in the City and use its municipal airport. In fact, why not enlarge the airport to make the option more attractive?[35]

Limited Progress

Little happened at the site until July 1927 when Union Pacific made arrangements for some soundings to determine the depth for the pile foundation that would be needed to support the "mammoth" building and heavy machinery. The results were sent back to the Ford Engineer Corps so they could make final plans for construction. This was expected to reach completion in ten months. The press expected Stone & Webster, California builders who had put up the Edison Plant to get the job, since they had built the other California Ford plants. Their people were already out inspecting the site. Experts expected the first work to be the construction of a retaining wall, or bulkhead, on the channel frontage immediately east of the bascule bridge. Simultaneously piling would be driven for the foundations and concrete footings poured. Then the ground area would be raised by fill from the dredging operations. The city would contract for that as soon as the final plans from Detroit were in the hands of Harbor Engineer R. G. McClone. The contracts between Ford, Long Beach City and Union Pacific were moving rapidly across the country by air

mail.[36] In September the factory was in the news again, chiefly to let the citizens know that the plant was expected to make Ford parts: batteries, glass, upholstery, buckles, and more.[37] The project now was up to an architect, and Henry Ford would choose Albert Kahn.

Albert Kahn

Albert Kahn, perhaps more than any other single individual, created a new twentieth-century industrial architecture. While he lived he had no rival in this respect, and this is documented in two full-length works about Kahn and in numerous articles and in chapters in architectural works devoted to his contributions. The Long Beach Ford plant is so thoroughly stamped with his style that only a brief glance at the evolution of Kahn's design will explain its origins. The sketch of Kahn's work which follows is directed largely to that purpose: the origin of the style found at Long Beach.

Born in Westphalia, Germany, Kahn's father, a Jewish Rabbi, immigrated around 1880 to Detroit and supported the family as a fruit peddler. A local sculptor, recognizing Albert's artistic talent allowed him to attend his art school free, but discovering that his pupil was color blind suggested that he become an architect. Thus, he secured Albert a job as an office boy in an architectural firm where he learned much. He applied for a scholarship to study a year in Europe in 1890. Soon after his return he formed a partnership, but began practice on his own in 1902. Commissioned to do the Engineering Building at the University of Michigan the following year, he became aware of the shortcomings of the standing method of reinforcement and adopted an invention of his brother Julius for his 1905 job, the Packard building.[38]

The first nine buildings of the Packard plant were conventional: a restricted distance between columns and wood floors soaked with oil creating a heavy fire risk in spite of sprinklers. Kahn introduced a form of reinforced concrete perfected by his brother. Packard's was the first factory building of reinforced concrete construction in Detroit. Julius Kahn became his chief engineer. Kahn is cited in nearly every standard architectural textbook for his 1908 Brown-Lipe-Chapin Company factory in Syracuse, New York. It helped fix the standard form of reinforced concrete framing. At this time, architects had considered factory design beneath them, and relegated the task to junior draughtsmen. Kahn felt no such compunction. The burgeoning automobile industry in Detroit demanded more factories such as the Packard building, and Chalmers, Hudson, and Dodge all called on Kahn. Importantly, Henry Ford had him design his Highland Park Plant. Ford, himself, conceived of the idea to have an entire plant under one roof with no open courts and no dividing walls. This was radically different from previous designs where every process was housed in a separate building. At Highland Park in the four-story main building, concrete-slab girder-beam construction was prevalent throughout. Parallel to the main building and behind it was the one-story machine shop with a saw-tooth roof. The office building

received more formal architectural treatment: beneath the cornice there was a frieze of glazed tiles.[39] As we know, in 1912-1915 the continuously moving assembly line was perfected at the Highland Park Plant. Already the Long Beach model was evolving.

Carrying the modern automotive plant a step further, Ford had Kahn design the half-mile-long Building "B" at the River Rouge plant. There the manufacturing process could not only take place under one roof, but on one floor. It had a steel frame that had been employed by Kahn elsewhere, and the walls were an unbroken expanse of glass. Kahn had transformed the factory from a dingy eyesore into a bright and cheerful place. Kahn's Italianate residential work does not interest us here. Yet, his decorative treatment, green tiles as decorative inserts and his use of buff-colored brick and of brickwork patterns around the tops of buildings crossed over from his residential assignments and appear on his factories and at Long Beach. His earlier designs retained classical revivalism in their exteriors. The march of columns and bays along the sides of the Long Beach plant are still reminders of the orders, but as the Finnish modern influence took hold in Michigan, classical designs were of minor importance. Ornamentation was simplified, and classical detail was merely symbolic such as the rosette at the north end of the Long Beach warehouse. During the prosperous 1920s Kahn was extremely busy in Detroit. Before building a plant he made a careful study of the flow of production and assured pleasant working conditions through adequate heating, ventilation, and natural lighting. All this was expressed in the half-mile long Plymouth building in 1928. He took account of the improved moving assembly, employed the latest machine-tool equipment, and provided paint spray booths and drying ovens.[40]

The Russian government invited Kahn to participate in building 521 factories in 21 cities in 1928. They began the order with a $40,000,000 tractor plant and an outline for two billion dollars worth of other buildings. A dozen were designed in Detroit, but Kahn technicians trained 4,000 Soviet engineers in Russia. Kahn could take on this work load because he had an efficient office, employed about 400 people, and worked with incredible speed. For example, when he designed the Republic Steel plant, eleven days after the sketches were started, working drawings were sent out for steel fabrication. Shocking his colleagues, he once claimed that architecture was 90 per cent business and 10 percent art. In 1929 he was doing considerably more than a million dollars worth of work per week. By 1937 Kahn had designed over a thousand buildings for the Ford Motor Company alone. Among these was the subject plant. The tie between Ford and his Jewish architect was so strong, that even during Henry Ford's anti-semitic publications in the early 1920s, the building partnership between the two held. Biographer Nevins claimed that Kahn, though hurt and indignant, felt Ford's error was rooted in ignorance.[41]

Take Off Toward Building

Albert Kahn, Inc., Architects produced the drawings for the Ford Long Beach plant in May, 1927 (Figure 1; CA-82-A-95 through CA-82-A-124). They included all of the modern features described above for the Rouge, Plymouth, and other assembly plants. We have no history of the drawing selection; however Kahn and Henry Ford worked so closely and on so many Ford factories that the selection, we may speculate, was rather routine. Once approved, and if this job followed the normal procedure, it would have taken the course recently described by the Albert Kahn Associates, Inc. office:

> "Once the project specifications were developed by our office-they, along with the complete set of drawings (architectural, structural, civil, mechanical, electrical) would constitute the bidding documents. Various general contractors would then bid on the project, using the specifications and drawings. The Clinton Construction company was selected as the general contractor [at Long Beach]."[42]

The amount of the building contract was originally estimated at approximately $2,500,000, but Ford representatives claimed that before the building was completed, it cost about $5,000,000.[43]

What delayed construction between 1927 and 1929 is not known. Certainly financing was not the roadblock, as Henry Ford paid cash, not with borrowed money but with his own. He believed in and had on hand a healthy cash reserve. His biographer Allen Nevins makes this abundantly clear throughout his account of the company's history.

On May 9, 1929, President of the company, Edsel Ford, finally made a firm statement about closing the Los Angeles plant and beginning construction on the one in Long Beach. Opening would be in the spring of 1930, and that did happen. Clinton Construction sub-contracted Raymond Concrete Pile Company of New York to do the foundation work, and E. Whitley arrived from a job in Florida on May 8 to take charge of the job. The Raymond Company would employ 40 men exclusive of the 200 men employed by Clinton, and the Raymond job would take four months to complete. The Raymond plan contemplated driving 2,400 piles, wooden piling ranging in length from 50 to 75 feet that would be driven below the water line. These would be capped with the Raymond concrete pile and joined with a special air-tight and water-tight joint. The two were then tied with a steel rod. A steel tube was then lowered to fit over the head of the wooden piling and into this concrete was poured making a continuous piling to the ground level. Below the water the wooden pilings would have a practically limitless life as no air reached them. The Raymond Company had put the foundation in for the River Rouge plant, but it was the first time this type of piling would be used on the Pacific Coast. A building permit was issued March 12, 1929, revealing that the total cost of the Type 1 Automobile Assembly Plant was

to cost $403,800, a figure far below the original estimate. Final inspection was scheduled for April 1930.[44]

Clinton Construction had Los Angeles offices, and Manager Huber there awarded Graham Bros. Inc. of Long Beach a subcontract to furnish crushed rock, gravel, and sand for the foundation.

The contract involved bringing more than 100,000 tons of rock from Catalina Island and sand from the Graham Lomita pits. It was the largest contract of its kind handled up to that time in the harbor district of Long Beach. In July when Henry Ford sent his first check to Clinton Construction for $242,073, a photograph of the check was printed in the newspaper. Work was proceeding rapidly; the pilings had been driven and in September most of the frame was in place. The structural steel was erected by McClelend-Marshall Company of California. The new plant also had a go-ahead on its natural gas supply when the City Council agreed to serve it with the City's gas, then in surplus of about 8 million cubic feet even in the winter months. Ford was willing to pay 19-1/2 cents per cubic foot even though Edison was only paying 13-1/2 cents.[45]

Long Beach citizens had good reason to rejoice about the new factory. On October 29, 1929 the stock market crashed, and in 12 months six million men were walking the streets unemployed in America. But because of the solid merits of the new Model A, the Ford Company weathered the first phase of the depression well. Car output remained just about level with the previous year. After losing money in 1927 and 1928 due to the changeover in model, the company made $91,522,000 after taxes in 1929. Profits sank by $51,000,000 in 1930, but this compared favorably with other manufacturers. The worst was yet to come.[46] In Long Beach, at the so-called "Depression Plant," work progressed toward an opening without interruption.

The Opening

Production at Long Beach actually started in March, 1930, but the official opening took place on April 21, 1930 when Lieutenant Governor H.S. Carnahan pressed a button at the Pacific Coast Club that started machinery at the Ford plant on Badger Avenue (CA-82-A-53). He characterized the opening as a matter of state-wide importance. Hardly had he pressed the button when the sound of a horn on the "first" completed car came back from the factory over the broadcasting system connecting the plant with the club dining room. "The key to Long Beach is yours" read a full page advertisement by the Mayor and City officials in the Press Telegram. C. W. Williams, Manager for the new plant, read a letter to the luncheon guests from Edsel Ford stating that the state-of-the-art plant marked a new era for life in Southern California.[47]

After lunch the guests were taken to the new plant in a small boat. A Ford Tri-motor plane parked on the field attracted much interest as did the Ford steamship Oneida as it arrived with a cargo of car and truck parts from the East by way of the Panama Canal. A group of men walked up the gang plank and shook hands with Captain Kaminiski. Through the open drawbridge came an excursion boat decked with pennants. The guests were then ushered into the new show room where a picture of Henry Ford hung on the wall flanked with baskets of flowers. They were then taken through the new plant described as a marvel in production engineering by the newspaper.

> "Everything seems to be on wheels, conveyors or hoists. A man reaches up and snatches a riveter, works with it a moment, lets go of it and it leaps back into the air again and hangs suspended, conveniently near. The visitors saw a chassis swung on the assembly line, and a few moments later saw the completed car presented to Mayor Hauge of Long Beach by Lieutenant Governor H. L. Carnahan."[48]

The Ford Company responded by holding an open house and giving tours for a week following the opening. During the first three days attendance averaged 10,000 a day. A never ending stream four abreast poured through the plant, coming from all parts of Southern California. The Press Telegram praised Ford for its efficiency and reminded its readers that Ford employed "men of families and home owners," an indication of Long Beach citizens's conservative mindset as well as business sense. Business Week that month told its readers that the plant would be serving over 200 dealers on the Pacific Coast alone.

The 1930 plant, as illustrated in the Kahn drawing (Figure 1) and photograph (CA-82-A-48), consisted of the main assembly building with a two-story office at its north-west corner and the two-story warehouse along its south-east side. The oil house (CA-82-A-49), added in 1930, stood separately on the south-east corner of the Cerritos Channel dock. Two huge Gantry cranes (CA-82-A-6) were positioned along the east and main dock and a water tower was on the roof. See Part II Architectural Description for a full discussion of the buildings and improvements.

D. ANALYZING THE WORK PLACE

Introduction

As seen above in the history of the Ford Motor Company and in the account of industrial architecture designed by Albert Kahn, Ford stayed far ahead of others in the industry in regard to fair treatment of his labor and in healthy and pleasant conditions of work. Published works on the Ford Company give this ample space and it calls for no further documentation here. Long Beach started up with a state-of-the-art healthy, safe and pleasant work place, and it was constantly altered and updated to match its updated product and the machinery introduced to produce it (Figures 4b through 4i; Figure 5). The

building featured natural light, forced ventilation, 14 general rest rooms with showers and lockers for employees, and an outside terrace for lunch hours. Since it had no hot lamps on the assembly line, it provided a cool and comfortable atmosphere in which to work. The main parking lot held over 700 cars and the one under the Heim Bridge after 1947 provided additional covered spaces (Figure 6). This feature reminds us that the workers could afford to own automobiles. The Long Beach Plant like other Ford plants offered them preferential prices and purchase plans if they wanted a Ford.

Recently an elderly informant recalled that in the early years Ford's no-nonsense personality was stamped all over plant policy. Pay was handed out in cash, no women were permitted on the plant floor, and only single women were allowed to work in the office. Ford didn't like people sitting around on the job. All the desks for the production engineers and the supervisors were at stand up heights.[49]

In 1926, nearly four years prior to the opening at Long Beach, Detroit announced that as of September 25 all Ford plants would operate on a basis of a five-day week. The action followed experiments in various departments made earlier that year. Working an eight-hour day, the employee's wage would be raised to a minimum of $5 a day with Saturdays and Sundays off. As the Ford Long Beach Plant opened, that President of the company, Edsel Ford, finally made a firm statement about closing the Los Angeles plant and beginning construction on the one in Long Beach. Opening would be in the spring of 1930, and that did happen. Clinton Construction sub-contracted Raymond Concrete Pile Company of New York to do the foundation work, and E. Whitley arrived from a job in Florida on May 8 to take charge of the job. The Raymond Company would employ 40 men exclusive of the 200 men employed by Clinton, and the Raymond job would take four months to complete. The Raymond plan contemplated driving 2,400 piles, wooden piling ranging in length from 50 to 75 feet that would be driven below the water line. These would be capped with the Raymond concrete pile and joined with a special air-tight and water-tight joint. The two were then tied with a steel rod. A steel tube was then lowered to fit over the head of the wooden piling and into this concrete was poured making a continuous piling to the ground level. Below the water the wooden pilings would have a practically limitless life as no air reached them. The Raymond Company had put the foundation in for the River Rouge plant, but it was the first time this type of piling would be used on the Pacific Coast. A building permit was issued March 12, 1929, revealing that the total cost of the Type I Automobile Assembly Plant was to cost $403,800, a figure far below the original estimate. Final inspection was scheduled for April 1930.1 well above average for the industry. It was common in the Ford plants and elsewhere during these hard years with no unions to protect them, that men were subjected to a system of favoritism. Friends of the foremen sometimes worked every week; others got no work. The workers were further aggravated by shutdowns without warning and by a total disregard for seniority in discharges. Men were fired from seniority jobs and later hired back at minimum pay. Speed-ups on the assembly line were used to get more work out of the men. Ford employees could hardly complain,

however, as Ford had made a temporary effort to keep wages high and he maintained his special regard for handicapped and for blacks.[52] Although much of this data on depression practices and events is taken from national sources, it is unlikely that Long Beach was any different. The industry was ripe for union organization. As for hiring of blacks, Detroit's plants were famous (infamous to some) not only for hiring blacks but for placing them in supervisory positions. No documentation of blacks at Long Beach shows up until some pictures of blacks appear at the work place in the 1940s.

The Organization

Administrative officers and the number of departments at Long Beach at the beginning were basic. The initial officers consisted of: manager, assistant manager, chief clerk, superintendent, general foreman, chief inspector, stock superintendent, general stock foreman, service stock foreman, body foreman, chassis foreman, maintenance and repair foreman, and factory service foreman. Until 1947 some confusion existed as to whether foremen were in the administrative "class" or belonged to the workers (see discussion below). After World War II as the factory approached its high water mark of activity the departments included: parts, paint, final inspection, quality control, chassis, repair, maintenance, boiler room, body, trim, dock, pilers, enamel, parts control, production control, manufacturing engineering and engineering standards, work standards, electrical, plant engineering, traffic, service stock, accounting, the "Up Front" supervisors and office staff, and plant security.[53]

The first employees came from the Los Angeles Plant, some 700 of them, and these were added to by the local labor pool and with supervisory personnel from older plants. Many workers transferred to this plant from the east as the years went by. Until the advent of Henry Ford II as President of the Company in 1945 working up from lowly positions to the top was the system employed. Employees moved from one Ford plant to another gaining experience before coming in at top supervisory levels. For example, one Charles Thomson began as a freight hustler on the Long Beach dock, spent some time in Dearborn, returned to be an inspector, was laid off during the Depression in 1932, returned as a freight handler, worked in defense plants during the war, and returned to work his way back up in inspection and to be chief inspector. He finally was appointed plant superintendent.[54] Still, working up the ladder right at Long Beach persisted as demonstrated by George Gregson. In 1950 the union president recommended that he take a test for a new job of "Layout Inspector," a man required to check parts for Ford's West Coast Purchasing program. Gregson studied for two weeks at night, passed a test, and was inspector for a month and then promoted to foreman of Layout Receiving Inspection.[55]

Henry Ford II in 1945 simply caught up with other big corporations when he hired promising college graduates and trained them for administrative positions. He also brought together seasoned, but young men for top positions known as the "Tex" Thornton group. A new

foreman plan was announced in 1947, a plan to define them as administrators and to improve their training. The 1941 Ford United Auto Workers (UAW) agreement had reduced foreman abuses and in doing so had reduced their powers. In 1947 Henry Ford II made them salaried employees. They got special parking places and from then on were considered part of the management.

At Long Beach the plant also ran a service school for mechanics working at Ford. It was located in back of the main gate garage.

After publication of the Ford Motor Company organ, the Long Beach News in 1946, promotions, service awards with pictures of employees, and congratulatory stories covered many of its pages.[56] Labor also gained recognition and cash awards for contributing suggestions for plant and production improvement, not major breakthroughs as these came from the laboratories in Detroit. Long Beach had a Work Standards Department where an effort was made to improve techniques and simplify work. There, employee suggestions were evaluated and judged.

The Long Beach Plant was essentially one work place. Unlike the Rouge plant where raw materials had to be processed and the several units of the work force rarely intermixed, Long Beach men were in constant interaction. Assembly, stock, dock and even office help were essentially at work in one building. Although the majority of the assembly and stock jobs did not require a specialized skill, they did require a high degree of manual dexterity and a mechanical aptitude for handling tools and machines. The smaller number of semi-skilled and skilled classifications of work did require a good knowledge of the job. Some of the many classified jobs requiring experience and background of specialists were: metal finishers, acetylene and gas welders, spray painters, cushion builders, automobile trim men, power lift truck operators, inspectors, machinists, millwrights, and steamfitters.[57] No job could be classified as unsafe.

No employee who was working at the plant in 1957, when the assembly building and offices were flooded up to four feet and a fire from floating fuel oil raged through the building, will ever forget the sense of camaraderie that took over. Six Ford retirees signed a letter on Labor Day in 1990 in which they wrote,

> "A memorable example of TEAMWORK for all time saw line workers, maintenance crews, salary and office staff including secretaries led by Plant Manager Bob Armour, in 3 eight-hour shifts, day and night, in a battle to save their plant and their jobs! A battle which they won and will never forget, with the lines back in production in two weeks."

They continued,

> "On this Labor Day we are proud with hundreds of others in this area, to have been a part of that team at "THE BEACH." We submit this tribute in memory of the men who made those early days at Long Beach so speciai; memories which wiil remain with us even as the last beautiful brick is pulverized at 700 HENRY FORD AVENUE."[58]

As for heaith care, Ford again watched out for his emploYees (CA-82-A-59). He had a physician on call at the iocal Seaside Hospitai where medical attention was available to employees 24 hours a day, seven days a week. Later, the company newspaper carried a monthiy coiumn by the doctor, "From the Doctor's Desk." The piant soid safety shoes on the site, but it was not until after the company was unionized that medical and hospital plans were offered...normai for the industry. Henry Ford prohibited smoking in his plants, a practice which ended shortly before his death in 1947 at the command of Henry Ford II. In 1954 the workers had their own blood bank.[59]

Organizing Labor

Few industriai workers belonged to unions in the 1920s, and the total automobile industry remained free of unions tiii the 1930s. Henry Ford, as is weii known, feit unions an intrusion upon his private property. He treated iabor weii, and he wouid have none of their unions. New Deal iegisiation and the organization of the Committee for Industriai Organization (CIO) would change aii this. The Wagner Act, passed in 1935, created the Nationai Labor Reiations Board (NLRB), reasserted labor's right to organize and to bargain collectively and outlawed blacklisting. The NLRB had the power to certify a properly elected bargaining unit and made the federal government a regulator. After its passage the United Automobile Workers (UAW) triumphed in all the major automobile piants. Ford was the last to hold out.

Hating the unions, Ford puiled back from being the benevolent protector of his labor force, and met their union challenge with violence. At the time gangster activity thrived in Detroit, and Ford and his family had kidnap threats and worse. A former pugiiist, Harry Bennett became Henry Ford's friend and protector. By 1930 he was one of the four most powerful men at the factory, closer and closer to Henry Ford in factory decisions than his son, Edsel. As pressure to talk to the unions rose, Ford turned the matter over to Bennett, over the head of Edsel who with others in the family had counseied taiking to the union leaders. In April, 1937 Chrysler signed a union contract; so in May, 1937 Walter Reuther and two other labor leaders came to the Ford plant legaiiy protected by the NLRB and holding a city permit to distribute hand bills. Bennett's thugs beat and maimed them, thus setting off four years of legal maneuvering, rioting and casualties, and bad press. When pressure from his wife and son rose to the place where his wife threatened to leave him,

Henry finally signed a closed shop union contract in 1941. Accordingly, for most positions one could only get a job if he belonged to the UAW.[60]

The sources for constructing a history of union recognition at the Long Beach plant are indeed limited at this date. Newspaper reports provide some understanding, and the following is taken largely from them.[61] Following the passage of the Wagner Act, the government set up regional offices. Dr. Towne Nylander was the Director of the National Labor Relations Board governing the Long Beach area. At the same time the United Automobile Workers of America (UAW), a CIO affiliate, expanded its operations and in 1937 attended to the affairs of Local Union No. 406 at a Hall in Lynwood, about ten miles north of Long Beach. D.J. Carse was president of the Local.

Following the Walter Reuther beating and in December, 1937 pressure built for The Ford Motor Company to comply with the NLRB and to deal with the UAW. A mass meeting was called of members of Local Union No. 406 at the Hall in Lynwood. Dick Coleman, Pacific Coast representative of the UAW, and other union speakers exhorted the approximately 800 employees of the Long Beach Ford plant to give approval to a possible nation-wide strike. No plans for a local strike existed; the vote involved only local support of a national walk-out. President Carse encouraged the assembled workers to stand together and they did approving the walkout with an acclamation vote which climaxed the gathering.

The following year the UAW did call a local strike at Long Beach. The country was still suffering from the Depression, cars were not selling well, and based on potential sales the Long Beach plant predicted it would only be assembling 60 cars a day and need from 300 to 350 men. This meant layoffs, so the union requested that the company meet with its bargaining committee to discuss seniority provisions in general, working conditions, and the proposed layoffs. At that time there were 636 employees in the appropriate bargaining unit, and 436 of these were UAW members in good standing. Thus, the CIO union had a clear majority of the company's workers. Meanwhile, the Ford Company had recognized an unaffiliated company union called the Independent Auto Workers and workers complained it was discriminating against UAW employees and discouraging membership in that union. When the company refused to meet with the CIO affiliated UAW, and thus refused to bargain collectively with a union of the employees' choice in accordance with Wagner Act requirements, a local strike was called for April 15, 1938.

The plant was employing well over 600 men at the time, and at about 1 P.M. 110 men employed in the trim department left their work and took up places on the picket line. Thus began the 24-hour a day picket line which would be in place until August. Police officers from Long Beach and from Los Angeles patrolled (the plant was in the jurisdiction of both since the city line crossed over the plant), and they reported the picketing peaceful. Dr. Towne Nylander, NLRB regional director, called in George McKay, field examiner for the Labor Board, and they held conferences with the local Ford officials. These did not include

ira B. Groves, plant manager, as he was meeting with Ford Motor Company peopie from Detroit in downtown Los Angeies. Production at the Ford piant carried on as usual.

Upon caiiing the strike the UAW filed charges with the NLRB against the Ford Motor Company for violating the Wagner Act. Nyiander wired Ford officiais to meet with the board and the workers so as to resoive the difficulties surrounding the strike. At the meeting Irwin Cary, regionai director of the UAW, offered a three-point proposai for ending the strike: set up a negotiating committee, aii strikers return to work without prejudice, and the company agree to discuss other issues at a iater date.

The Ford company aiso came with a peace pian. It expressed a wiiiingness to meet with a group of workmen to consider compiaints, but recognition of the union at the Long Beach plant was not included in the offer. W.F. Wiiliamson, San Francisco attorney and direct agent for the Ford Company in Detroit announced,

> "We are powerless to grant recognition of the local union because the main plant at Detroit has never done so, and we cannot assume such power in the case of a branch."

The company would put men back to work as they were normaiiy needed. in rejecting the union's terms Wiiiiamson offered to reinstate only 77 of the several hundred workers who had struck. He then told them that the branch piant was governed by the market place. Even shouid the union hait its strike, iess than 400 of the 680 workers who were empioyed when the strike was cailed a week before wouid be taken back. He aiso pointed to iarge numbers of men at the gates desiring to return to work. He claimed that in the layoffs union men were not discriminated against and that there were no reasons for charges to be brought up against Ford through the NLRB.

The Union, represented by irvin Carey, rejected the Ford peace offer, said the re-empioyment of the 77 men was unsatisfactory, and peace negotiations coiiapsed. A hearing was set for May 19, and the striking workers dug in for a iong siege. Their spokesmen declared that they would continue peaceful picketing but wouid not attempt to gain any points through picketing. Over half the workers at the piant had walked out; but with the curtailed production, Ford managers said they had aii the men they needed. Don Carse, President of the UAW iocal pointed out that Harry Bridges, longshoremen leader, had appeared at the automobiie union meeting that week and promised his fuii support. All hopes rested on the May 19th hearing.

The hearing took place before Triai Examiner R.N. Denham of Washington D.C., and the CIO/UAW charged Ford with fostering a company union and refusing to bargain with the CIO. On June 7 the hearing focused on the origin of "protest cards" which assertedly were passed out by foremen at the Long Beach piant, signed by many of the employees, and

mailed to 411 West Seventh Street, Los Angeles, the address of a local capitalist and sportsman, Frank A. Garbutt. The cards read,

> "We, the undersigned, are willing to return to work without affillation to any national chartered union. We believe that the way to induce employers to hire us is by giving them good service and loyalty that we expect in return."

it might be well to recall that before the union contract it was the foremen who decided who would get to work and who would not during layoffs.

While picketing at the plant remained peaceful, by April 27 twenty-four cases of assault or intimidation of workers occurred in the county associated with the strike. Incidents included attacks on two men in Compton wherein striking men dragged workers from cars and gave them a beating. In one case several carloads of strike sympathizers pursued two carloads of men en route to Redondo Beach and besieged them at a farm near Dominguez where a farmer lent a gun to the workers to hold off the besiegers. A Ford company official driving by saw the disturbance and obtained the aid of a motorcycle officer who led the workmen out of the farm and toward their homes. Charges of simple assault were filed in several cases, and the sentences passed out were light, the worker usually placed on probation.

The so-called 'goon squad' case attracted most attention. As first reported by Foreman Louis M. Field, he, a non-striker, was set upon in a vacant lot next to his home on April 22, as he repaired his car, by two striking employees, Frank M. Ryan and Bert L. Lytal. Field claimed that Ryan picked up a hammer and started beating him while Lytal joined in with his fists. "i grabbed Lytal," he told police, "and held him until help arrived, but Ryan fled." Field's injuries were not serious. it was the first violence connected with the strike within Long Beach City limits and much celebrated. Lytal was charged with attempting to force a worker at the Ford plant to leave his employment and join the strikers, but this was soon changed to a felony charge of assault with intent to do great bodlly injury. He was held in jail in default of $5,000 bail. Ryan was named on the warrant, and returned to face the charges. The jury trial took place in August, and Field to his regret had no neighbors to testify to any blows. Ryan, when he took the stand, denied that either he or Lytal had struck a blow but asserted that Field was enraged when he and Lytal came to Field's home to discuss possibilities of settling the strike and that Field was the aggressor. Field had picked up a hammer and as he moved as if to strike Ryan, Lytal grabbed him. Ryan said he then disarmed Field and fled, leaving the city on advice of counsel. The jury acquitted the pair after five hours deliberation.

Returning to the hearing at the NLRB, we find that a verdict was handed down via Washington D.C. on August 22. The trial examiner R.N. Denham ruled that the company had violated the Wagner Act by refusing on three different occasions to bargain with the

UAW, which, he judged, represented a majority of the company's employees. He recommended that the company be required to withdraw all recognition from the unaffiliated Independent Auto Workers as a collective bargaining agency of its workers and to completely disestablish the organization as such representative, either in its present form or in any other form identified with or traceable to its present organization, management or administration. Denham said the company had dominated and interfered with the Independent Union in its Long Beach plant and had discouraged membership in the UAW.

Further, Denham's report ordered the company to "post immediately in conspicuous places" in its Long Beach plant notice to employees that the company would not interfere with their right to join a union of their own choosing and would dissolve the company union.

The NLRB ordered reinstatement of approximately 450 employees and was instructed to drop present workers if necessary to do this. The company was instructed to mail notices to each of the striking employees offering reinstatement, the offer to remain open ten days. In event of failure of the company to offer such reinstatement, the employee would be entitled to full pay for the time lost. The reinstatement had to be made without prejudice to the seniority of the employees. Ira Groves, Plant Manager, claimed he had no official information regarding the Board's action and met with Ford executives in Los Angeles.

Denham's report marked the fifth Ford case in which either the board itself or one of its examiners had found the company guilty of violating the Wagner Act. The company appealed the case to a federal court, and a ruling came down in December, 1939 ordering back pay and reinstatement of strikers. The Ford company did not comply. In May, 1941, with the country already at war union pickets marched again at the Long Beach assembly plant, but withdrew in anticipation of a decision which would make the CIO/UAW bargaining agent for the Ford employees. In Detroit Henry Ford had finally given in, and an election at Dearborn on May 24 made the CIO the bargaining agent there. Paul Harvey, secretary of Local 406, announced that a majority of Long Beach employees would vote the same preference.

In March, 1942, an NLRB hearing was held in Los Angeles at the joint request of the Ford Company and the union to reach agreement over certain differences affecting computation of back pay associated with the 1938 strike. Attorney George Shibley, counsel for the union, said that his witnesses would establish that the company flagrantly repudiated and refused to comply with the ruling of the NLRB. The back pay amounted to $2,500,000. The company objected claiming that many of the strikers never returned to work in the plant and therefore were not entitled to the back pay. After several hearings in Long Beach in early 1942 a settlement was reached and the figure of $220,000 agreed upon. Nearly a third of the 230 men involved were by then in the armed forces. Attorney Shibley acted as

paymaster on July 1, 1942, handing out the checks which ranged from $2,276 to $36 in his offices at the Heartwell Building in Long Beach. The Long Beach plant was now a union shop.

Post World War II

September, 1945, Ford Long Beach announced that it would reopen within 60 days if it could find the between 1500 and 1800 men it needed. Since 1942 the plant had been used for a supply base by the Army Air Force and had just been released to Ford. Hiring offices were being set up, and Ford's entire Los Angeles organization was being transferred to Long Beach. Simultaneously, the UAW assured Ford of no strikes and continuous production.[62]

The plant opened in December 1945 with 650 workers. Those who did come to work at the plant worked sporadically as Ford had trouble getting parts. Ford bought parts from anywhere they could find them. If they turned out to be made by non-union suppliers, Long Beach Ford's unionized workers refused to install them. In April 1946, Dearborn had 32 of its suppliers on strike, so the Rouge could not send out components. In May a strike in soft coal curtailed shipment of parts to Long Beach forcing the plant to close on May 17. Two work stoppages alone cost the plant 25,265 man hours. In December it was closed for ten days again due to a coal strike. The plant used slow-downs and cut the work force. The post-war strikes affected the whole industry. One man who worked there for six months right after the war drew only about two full pay checks in the entire time. Ford paid him $1.48 an hour ($11.84 a day). The plant had a record of no stoppages in 1947. With this came better labor relations with a local turnover rate of only 16 percent and fewer grievances. Compared to the Rouge, Long Beach was still out of line. Management explained this by saying that the Long Beach plant was situated in a 'floating population' area where thousands of people poured into the state, undecided as to where they wanted to live and work.[63]

In late 1945 with a rising cost of living, the auto workers also demanded a raise in pay. Ford was losing $300 per car and suffering from unauthorized work stoppages. The UAW agreed to be responsible for their workers, discharge leaders of unauthorized stoppages, and Ford in January 1946 agreed to an 18 cent pay raise. Henry Ford II declared that unions were there to stay and advocated "the same hard-headed attention to human factors that we have given so successfully in the past to mechanical factors."[64] Ford suffered no post-war strikes within the company, thus none at Long Beach.

Labor saw steady improvement at the plant after 1947. The Company and UAW/CIO signed a new two-year contract in October 1947, covering a wage increase which maintained the Ford average hourly rate at seven cents an hour greater than the average hourly rate of its principal automotive competitors. It also treated with the Taft-Hartley Act in regard

to illegitimate strikes. Like most Ford plants that year, Long Beach employees voted for a straight 11 cent hourly wage increase rather than a pension proposal and a seven cent increase. In July 1948, Ford again agreed to wage increases, this time for 13 cents an hour for employees making more than $1.50 an hour and 11 cents for those making less. At the same time management was pleading with labor to produce quality work and meet new production schedules. Speed ups of the assembly line, however, were controlled by unionization. Hospitalization plans improved, and in 1948 covered salaried workers. The UAW-local 406 at Long Beach was an active bargaining agent, and most of its employees participated in its elections which were dutifully reported in the company newspaper.[65]

Layoffs for model changeovers were routine. For example, beginning in March 1948 the layoffs were for from two weeks to six weeks depending upon how much a worker could contribute to the changeover job itself. Workers were reminded to keep up their premiums on group insurance during the layoff. Strikes at other plants also translated into no work such as a coal strike in 1948. In May 1949, a strike at the Rouge plant caused a crippling parts shortage and shut the Long Beach plant down laying off 1,117 hourly employees. Salaried employees were not affected. It was the first layoff at Long Beach Ford because of strike conditions within the Ford company since 1941. That was the year UAW had won its fight to organize with a 10 day strike. The 1949 shutdown came directly from a shortage of body sides and roof panels. The Lincoln-Mercury plant in Maywood and Richmond Ford closed as well. All hourly employees were given the option to take their vacations during the shutdown period and reminded to pay their insurance premiums. In May 1953 the Canton Forge division plant, a supplier for Long Beach went on strike; Long Beach closed down indefinitely. This time workers were paid for all holidays falling within the layoff period.[66] That year the UAW contract provided for a pension plan, the first such plan for hourly employees in the industry. These kinds of perquisites helped Ford Long Beach keep its work force together.

Impartial umpires representing company-union affairs visited the plant twice a year and examined the grievances. In 1954 the plant and Local 406 had no unsettled cases. Further, hourly employees were averaging $94.21 a week ($106 a week); the annual payroll amounted to $6,500,000. Its record year, however, was 1955. Long Beach's 1,729 employees earned an average of $112.39 a week making the annual earnings $7,887,362. Ford was still keeping his hourly pay above the national average. At that time between a thousand and 1100 hourly employees voted in union elections, as always very high participation. The Company reminded its workers that above wages they were paying all unemployment compensation, pensions, and sharing insurance costs and social security costs, but this was quite normal. The company, its newspaper stated, underwrote an expensive plant safety program, plant medical program, training, and paid for recreation programs. Retirement was automatic at 68.[67]

In July 1958 when Plant Manager Settles announced to his employees that the Long Beach plant would close and transfer them all to the Pico-Rivera plant, Ford Motor Company employees throughout the southland were voting to strike. This would be necessary only if it were needed to bring about a new union contract. On September 19, 1958, Long Beach workers declared anew that they were ready to join in a nationwide strike unless a settlement was reached by negotiators in Detroit that day. The settlement was reached, but the news got out too late to the coast to prevent the local strike. It lasted six hours. Then, a new contract went into effect boosting pay, giving idle workers some pay for up to 26 weeks, increasing group insurance benefits, and adding other benefits fitting to the United States labor picture of the late 1950s. However, due to a parts shortage, Ford Long Beach did not reopen for five more days. Then it sent out telegrams to all its workers telling them to return and hired an additional 50 men.[68]

Social Affairs and Social Boundaries

The Company offered numerous opportunities for a social mix in the post-war years. Among these were an open house for the employees when the new model came out each year, a Christmas Party, a family day, and a constant flow of recreational events. Golf, fishing trips, baseball, basketball, and more were organized for competition with other plants or on their own. Long-time employees were recognized with little parties and given the gold watch or service pins.

Blacks participated along with whites, and the old Ford policy of equality at the work place and at its functions held. When Henry Ford II visited the plant in 1947, he had his picture taken with a black, frame slide riveter William Devers. Devers got into a lot of pictures. He and his eight children were photographed on family day, and his little girl was pictured on the hood of a new car on new model day. Wesley Mosley, another black riveter, was awarded $393 in 1955 for his plant improvement suggestion, and photographed. Soiden Johnson was photographed with his musical group. Spanish surnames were hard to find, but they began appearing in the mid 1950s.[69]

The social limits were pretty obvious, and reflected greater America. Of the many pictures published in the company paper, none were of a black person in a supervisory role. Women only worked in the offices, and when a woman became a supervisor in the Payroll Department it made the front page. Salaried and supervisory personnel socialized separately, the annual Supervisors Dinner being a rather grand affair held at a local hotel. Their Christmas dance was an exclusive as well.

Conclusions

Long Beach Ford could not be charged with exploiting its labor, as far as we can tell. Company losses forced them to close during the depression years. There was no child labor, and women were not complaining. They were still "up on the pedestal," serving as typists and secretaries with little question as to their role. Henry Ford set the pace for decent labor practices in his early years. Aside from the era when he made his gangster-like bodyguard his informal labor relations man, he provided as well as or better for his work force as any other leader in the auto industry. If the pre-unionization violence reached Long Beach it never made the local newspapers as these have been carefully searched.

This local plant did a commendable job in bringing its employees together outside of the factory for recreational and for family social events. The employee cafeteria at a corner of the assembly building was light and heated, and some of the nicest scenes at the plant were taken of workers enjoying their lunch out on the sunny dock. Bringing home decent salaries, many of these workers had their own homes and cars, dressed their children well, and took annual vacations. All of these were documented in the company newspaper in one way or another. One Henry Blunden, Maintenance Department, supported four children and sent them to the University of California, Los Angeles, riding out the Depression which was the major hardship of his working career.[70] During layoffs men spent their time on home improvement. Pictures of family day displayed happy, prosperous people. Working at Long Beach was a good solution to making a living.

E. TECHNOLOGY AND PROCESS

The Ford Motor Company Assembly Plant in Long Beach was designed as a very large space where cars could be put together, primarily from parts made elsewhere, on a moving assembly line (Figure 6). This rapid and efficient way of manufacturing cars kept the cost of each one low enough so that many people in the United States could afford to buy them.

In a 1930 magazine article, Mel Wharton wrote, "Much has been written about the assembly line method of automobile production..." Since that time, much more has been written as scholars as well as journalists have taken an interest in the subject. According to the author of a 1990 review article in the American Historical Review called "Recent Trends in the History of Technology," the best among a number of recent studies of the American system of manufacture, which culminated in the development of the moving assembly line in the automobile industry, is David Houndshell's From the American System to Mass Production, 1800-1932: The Development of Manufacturing Technology.[71]

Houndshell describes the evolution of the American system, using precision machinery to make interchangeable parts, and its consequences. One was its impact on labor. Operating the machinery to make the same parts over and over and fitting them together in the same

sequence over and over could be done by unskiiied or semi-skilled workers. This meant that skiiied workers, who commanded higher wages than iess skiiied workers, need not be hired. it also meant that goods produced by these workers couid be made and soid more cheapiy. These are the ideas that Henry Ford made even more time and iabor efficient on his moving assembly line. Houndshell's account of this development sets the stage for the opening of the Ford Piant in Long Beach.

But the assembly of automobiles in the plant could not be accompiished without a iarge variety of other jobs also beIng done there. Aithough the jobs on the assembly line did not requlre special skills, a few of the jobs, in maintaining machines and designing and managing the work place, requlred specific skiiis and educational background. When Ford came to Long Beach, as the section on labor indicates, it brought with it a policy of encouraging employees to increase their skiis so that they couid take increasingiy more responsibie and higher paying jobs.

The building also served as a supply center for Ford parts, provided space to train mechanics to maintain and repair Ford cars and was used to assist Ford's marketing program. it served the last function by providing exhibition space for Ford products made locally and eisewhere. And its workings aiiowed Ford's saies staff to show the pubiic its modern, up to date technological marvels that were used by Ford workers to assemble cars (CA-82-A-9i). Wharton wrote of Ford's assembly line that "since the plant opened in Long Beach, thousands of Los Angeies people have seen it for themselves--and it never ioses its fascination."[72]

To carry out its primary mission to assembie automobiies, the plant had to have the capacity to receive large quantities of materials from which the cars were put together. initiaiiy, its location adjacent to the water and near a major raiiroad iine facilitated this.

When the piant opened, a Ford-owned steamer brought materiais from Chester, Pennsylvania by way of the Panama Canal and docked at Long Beach once every two weeks. Each steamer brought 2500 tons of materiais which is equal to 7500 freight cars a year. Those freight cars in a solid line would extend from the City Haii in Los Angeies to ten miies beyond Riverside.[73]

At the local Ford dock, two gantry cranes (CA-82-C-6), each with a liftIng capacIty of five tons, picked up cargo from the ship's holds and deposited it on the second fioor of the stock warehouse (CA-82-A-60). Overhead traveling cranes, each with a capacity of five tons, iifted those packages of unassembied parts and either piaced them on the second fioor or iowered them through wide hatches onto the main floor (CA-82-A-62 and CA-82-A-63). From these locations, conveyors moved the materiais to the assembiy iine when they were needed[48] (Figure 6).

Additional materials and parts arrived by rail (CA-82-A-61). A depressed rail line ran the length of the warehouse building to allow workers to unload the rail cars directly on the floor of the building which was at the same level as the boxcar doors. Then workers used the overhead traveling cranes to move them to other locations.

Information about how many cranes were available or how many railroad cars could be accommodated before the pressed steel building was added is unavailable. But documents from 1932 and 1939 report that, at that time, the warehouse and pressed steel buildings had six overhead traveling cranes with a capacity of five tons each. In 1932, the depressed track could accommodate 15 forty foot long rail cars or 13 fifty foot long cars. Sixty-four more could be accommodated outside of a siding. By 1939, the outside siding had been expanded to accommodate 92 rail cars and 18 were reported to fit inside.

In Wharton's article, he described car assembly operations in the new Long Beach Ford Plant (CA-82-A-126). The final assembly line, he wrote, was 560 feet long and moved 106 inches a minute. First to go on the assembly line was the simple frame. Then, successively, shock absorbers, running board brackets, battery carriers, front and rear axles and springs were attached. Next the motor was fitted into place. Then workers added steering gears, radiators, batteries and wheels with tires. At this point the bodies, which were suspended overhead on a conveyor system, were dropped on the chassis and fastened into place. Then the fenders, dust shields, lamps, floor boards and cushions were attached. The gasoline tank was then filled and the headlights lit. Finally a driver jumped behind the steering wheel. The lights were quickly checked against a testing board, and in 61 minutes from the time the naked frame started its journey on the line, the car or truck slips off the final ramp on its own power (CA-82-A-78 through CA-82-A-91).

Wharton also described some of the support activities that made the car's final assembly in 61 minutes possible. In a separate building, he wrote, paint supplies are stored, thinned and warmed (CA-82-A-75). A battery of pumps forced the ready to use paint through a series of pipe lines directly to the job. The plant, he reported had 35,000 feet of paint pipe line.

To assemble a car in 61 minutes, workers in the plant used tools powered in several different ways. Electricity was supplied by a Southern California Edison Company plant across Cerritos Channel and east of the Ford Plant. Questionnaires filled out in both 1932 and 1939 report the following power sources. Internally there were three generators, one Ideal Electric with a 25 kilowatt capacity and two Westinghouses with a 20 kilowatt capacity. The plant made steam in three boilers, two manufactured by Erie City that generated 292 horsepower each and one by Badenhausen that generated 300 horsepower. All three could burn rubbish and fuel oil but primarily consumed natural gas provided by the Long Beach City Gas Department; Long Beach and Ford had a special agreement about this supply as noted elsewhere (CA-82-A-39 through CA-82-A-48). Additionally, there were

two steam driven engines made by the American Blower Company that generated eight horsepower each. And there were five electric air compressors, two 14 x 16 that had a capacity of 526 cubic feet per minute and three 12 x 10 that had a capacity of 369 cubic feet per minute. Finally, the plant had a Dayton-Dowd Fire Pump with a capacity of 1000 gallons per minute. On-site inspections of the plant in 1990 revealed the continued presence of the steam boilers and fire pump.

When the Long Beach Ford plant first opened, the facility consisted only of the assembly building, offices and warehouse (CA-82-A-48). Soon, however, the pressed steel building was added.

"Pressed Steel" according to a 1931 article by J. K. Frazee, means making fenders, hoods and like sheet metal parts. The raw material for this process are sheets of steel approximately one thirty-second of an inch thick which is sent to Long Beach on Ford's ships. The plant is equipped with conveyors for moving the work from one machine to another.[75]

The machines used to press this steel are some of the heaviest and most expensive machinery that mass automobile production used at that time (CA-82-A-64 through CA-82-A-74). One machine, for example, cost $50,000. Managers of the Ford Motor Company decided to make pressed steel parts in Long Beach to supply the local plant and others on the west coast in San Francisco, Portland and Seattle as well as overseas plants in Asia. The one at Long Beach was Ford's only pressed steel plant in the United States outside of the main factory in Michigan.

The unit at Long Beach used eight presses and shears, and contained a bonderizing department and a large die maintenance section. That last department was naturally of great importance, in view of the size, accuracy and cost of the dies required for these huge machines.

Seven different parts of pressed steel were made including front and rear fenders, running board and front splash shields, fender aprons and reinforcements, and hoods. One of the largest presses in the Long Beach plant, according to Frazee, made front fenders. It weighed 125 tons, used a 17 ton die, operated at 25 tons pressure and worked to one 4,000 part of an inch tolerance. He also noted that the smallest machine in the plant was the hardest to operate. It wired fenders for reinforcement and workers who ran it needed six months of training. The most complicated parts to make were rear fenders; they required 20 different operations and the accurate spacing of holes, brackets and an attached apron. Making the hood required eighteen operations. Running-board shields were pressed by an enormous device which made two at once forming the fender well, front splash shield and fender reinforcement with three separate dies.

After the steel parts were pressed, they were Bonderized (CA-82-A-54 and 55). Bonderizing is a treatment by which a material called bonderite gives the pressed steel parts a chemical rust-proofing. From the presses, parts went to a large tank where they were washed clean, and then into the rust-proofing solution. The process prevents rust forming should the enamel be scratched in service. Parts made in Long Beach to be shipped to other branch plants were sent right after they were Bonderized. Parts are not enameled until they reach the plant where they are to be assembled into cars. This avoids possible scratching during shipping.

Steel pressing at Long Beach began in the fall of 1930 when the building designed for it opened. In December, 1932, both the steel pressing operation and the assembly line were closed and from January, 1933 to December, 1934, the building served only as a sales and service center. When the building again began operation as an assembly plant, steel pressing operations were not resumed. The steel pressing equipment had been shipped back to Ford's Rouge River plant in September, 1934. The space that had been devoted to steel pressing was taken over to serve as part of the assembly floor.

The only diagram that survives of the organization of the assembly floor was made in 1940 (CA-82-A-126). It shows the implementation at Long Beach of the ideas of the moving assembly line. The line is laid out so that parts that are needed for the assembly process are available to workers at the time they are needed. Storage and assembly functions are arranged in the building to serve that end. In addition to the main assembly line, there are other lines along which parts pass as they are, for example, painted and dried so they can be attached to the automobile at the appropriate time. The diagram also indicates the separate building in which paint supplies were stored and mixed so they would be available to use when needed on the assembly line.[76]

And the diagram indicates the sites of other activities that occurred in the building including the service stock department, offices, show room and service school.

This diagram shows the configuration of the assembly line at the time it was made. It had been changed many times since it was first laid out in 1930 and there were also many subsequent changes. As the following section on Temporal and Technological Change indicates, Ford brought out new model cars each year. To build the new models, the assembly line had to be temporarily stopped and reconfigured to accommodate the changes that separated the new models from the old ones. While the assembly line was stopped for these model changes, other changes in assembly technology were often also made. The changes reflected research and development carried on at Ford's laboratories in Michigan.

F. TEMPORAL AND TECHNOLOGICAL CHANGE

Introduction

In treating with the Henry Ford empire, we have several givens in examining changes over time. For one, there was never any real shortage of hard cash at the home offices. When reserves dwindled during the depression, Ford closed assembly plants so that he could continue making money. The elder Henry Ford as we have seen was hesitant to give up on the old Model T, and in moving on to the Model A and V-8s it took the push and shove of new competitors and of younger men around him such as his son Edsel to make things happen. In spending money for upkeep, in adding state-of-the-art technology, the Ford company offices in normal times never seemed to hold back. As far as the evidence tells us, all innovation except for minor improvements like those stemming from plant to plant Work Standards Departments and employee suggestions, came from Dearborn, Michigan. There Ford had work done at the Edison laboratory and at his own research laboratory and he tended to introduce positive change in his Detroit factories first, then promptly see that the branch factories were supplied. The Long Beach Plant at its opening followed along with the Rouge where a modern assembly plant was installed at about the same time. It did not appear to lag technologically, nor did it make decisions for itself. We read of sweeping modernization as in 1951, and of minor changes. Except for employee suggestions, they all were initiated and dictated from the home plant.

As for management changes and how new blood would affect Ford Long Beach, this would depend upon how the Ford family juggled power among themselves. The family owned all the stock until 1955, and even after that and surely until this plant closed in 1959, they made the decisions. Henry Ford finally had to concede to handing over power to his grandson, Henry Ford II in 1945. Then we see organizational changes, and new innovative blood at the top that would push Long Beach into a high water mark period.

When the Long Beach plant opened Ford executives acclaimed it as "The most modern and efficient factory of its kind in the world."[77]

The Development Period: Depression Years

As we know, the subject plant was conceived during the expansive mid 1920s. The fact that there was no slow-down immediately after the Depression set in 1929 can be attributed to Henry Ford's public spirited approach. He believed that the first acts required by the crash were plant-expansion and price-cutting. Early in 1930 he announced a $25 million plan of plant construction. He also redesigned the Model A adding much stainless steel and a roomier interior. This temporarily successful auto would be Long Beach's first car.[78] Expansion came to the new plant on July 31, 1930 with the construction of a new pressed steel building, a $12,000 addition to the main assembly

building. It was the only pressed steel plant in the United States outside of the parent factory in the East. Pressed steel meant the making of fenders, hoods and other sheet metal parts and required some of the most expensive machinery of mass automobile production. Long Beach would be the source of supply for all Ford branches on the Pacific Coast.[79]

Albert Kahn redrew the 1927 plans for an oil house in November, 1930, and it too was added (CA-82-B-3 through CA-82-B-8). It was a separate small building at the southeast corner of the dock facing on the Cerritos Channel.[80]

Still expanding, in 1931 Ford bought 33.33 additional acres east of the Long Beach property from the Union Pacific Railway Company. The new land extended north from Cerritos Channel nearly to the Dominguez viaduct. It was diked and filled and made ready for future plant buildings. This brought the total acreage up to 73.204. The only reduction of acreage ever was in 1947 when the government purchased .742 acres when they built the Terminal Island Freeway.[81] In March, 1931, with the Model A not doing well against Chevrolet and Plymouth competition, Ford brought out the V-8 and suffered grave losses in getting it into production. Meanwhile Long Beach turned out a fleet of trucks for use at the construction site of Boulder Dam (CA-82-A-94). The depression deepened, and only 8 of Ford's 35 assembly plants were in operation in 1933. Long Beach closed in December, 1932 and remained inactive until February, 1935. March 10, 1933 Long Beach was struck by a sizeable earthquake. It was, of course, already closed down. Although we have few records of damage done to the plant (CA-82-A-56 and CA-82-A-57), we do know that a building permit was taken out on March 28, 1933 to "alter the industrial site." The work cost $3,000 and could have been devoted to earthquake repair or to altering the Pressed Steel building. The pressed steel operation had ended with the close down. The building was converted to a cafeteria at the northeast corner, and to storage for fenders and for replaceable equipment.[82] Outside the cafeteria was a terrace area where the employees could lunch as well (CA-82-A-22 through CA-82-A-24).

In spite of the streamlined V-8, Ford went into a third year of losses, but in 1934 financial recovery began with modest profits. In November Ford announced he would spend amply on advertising and expansion. He did, notably at the Rouge. Yet, in 1936 he had only 22.44 percent of the passenger car market, a new low for Ford. Ford continued to innovate, and in 1936 introduced the road test track at the Rouge, then at his factories including Long Beach.[83] This lay north of the northeast end of the assembly building. It was a 556-foot long track approached by the new cars as they exited the assembly line and building. This is where the cars would be tested until a modern roadability test building was added to the north end of the assembly building in 1950. To the west of the old road test track lay the employees parking lot which held over 700 cars.[84]

After the slump in the economy in 1938, Ford profits steadily increased. The subject plant had $200,000 worth of dock repairs and new dock facilities completed by the White and Squires, Engineers and the Tavares Construction Company. The latter had a contract on the dock piling, and they commenced work in January, 1939.[85] Subsidence was not a major problem in 1939, but it had begun, amounting to an average of about a half an inch a year.

In Long Beach City the Depression had been weathered relatively well. The city grew slightly, by 15.7 percent, largely due to the continued oil production, being the home port to the Pacific Fleet, and the steady growth of the local manufacturing industries.[86] The Pacific Fleet, which began with 18,000 naval personnel and their families, grew to 50,000 officers and men and 43 vessels by 1938. Even more prosperity came with the discovery and exploitation of the Wilmington Oil Field. In 1936 a singular General Petroleum derrick stood west of the plant well off the company property. In the distance the Signal Hill field came into view. Soon after this time wells appeared on the Ford property, and 1939 aerial photographs of the Ford Plant took in a forest of derricks. Thirty one derricks were up in 1940, and 55 in May 1952. A 1940 drawing locates the wells, largely on the newer eastern acreage and north of the assembly plant with one just east of the pressed steel building between the railroad tracks.[87]

After the outbreak of World War II the United States government leased the entire Long Beach Ford plant and took possession on April 30, 1942. At that time the offices were moved to Los Angeles and all assembly and service stock operations were discontinued. The service stock section (essentially spare parts) was moved to the Richmond, California branch. During the war years the plant was used by the Army as a supply depot. The Army placed anti-aircraft guns on the roof next to the "Ford" sign, and west of the plant was a fleet of barrage balloons designed to protect the Los Angeles Harbor. Many of the Ford old timers remained at the plant and worked for the Army while others easily found work at the local shipyards and other defense plants. Thus, another interruption kept the plant from reaching its potential, and it would still have to overcome post-war shortages and labor adjustments before it would reach its high water mark of development.

Development: The Post-War Years

The Army turned back the Ford plant to the company on September 7, 1945, and on December 11 the first new Ford rolled off the assembly line. Supervisor A.E. Edwards announced it would be a Tudor sedan, but the plant would produce both cars and trucks. With a payroll of 650 men, they hoped to be producing 250 cars a day once the bottlenecks were cleared up.[88]

September 21, 1945, marked a turning point in the Ford empire. Henry Ford, who had been in charge, and who had been allowing the ex-bodyguard Harry Bennett to take a major role in running the company, finally stepped down. Ford had been suffering paralytic strokes.

Henry Ford II took over as President and at aii ievels of decision making. Clara Ford and Mrs. Edsel Ford had forced the decision, and within minutes after Henry Ford II was in office he got rid of Bennett.[89] Getting rid of Bennett's men in the empire took time, and with old management in shambles, post-war machinery needing reconversion, and post-war strikes (none at their own plants) the new President took bold steps. He gathered around him a new team and formed new policy. Henry Ford ii picked men like Robert McNamara of the Harvard School of Business and a group calied the "Whiz Kids" to place Ford back in a position of automotive leadership.

The Long Beach plant benefited from these changes, but they were too many and too high level to belong in a branch plant history. One, however, the separation of plant manager from the Sales Department, was actually initiated at Long Beach with Ford II coming out personally to supervise the execution of the plan.[90]

Returning to post-war production at Long Beach, we found the plant reacting to strikes, coal shortages causing freight embargoes, and parts shortages. Aithough there were illegal work stoppages within the company, the United Auto Workers (UAW) called no strikes during these years in Ford plants. Henry Ford II gave a speech in 1946 entitled "The Challenge of Human Engineering," in which he called on labor and capital to come together and to solve their common problems. A UAW official called it the best speech he had heard in ten years. (See section on Labor.) Long Beach Ford was in a way a victim of the times, and suffered the problems common to the whoie industry. On Aprii 22, 1946, the local newspaper reported that the plant had been closed about half the time since it reopened. That April it was turning out only 132 cars a day. In December critical parts were being shipped in by air freight. On the positive side, Long Beach was selling more parts than ever before: over $4,750,00 worth of parts and accessories during 1947. It had a new bonderizing unit installed with a 570 foot conveyor.[91] To its immediate west and just east of the bascule bridge, a new Terminal Island Freeway neared completion with its own new bridge, the Commodore Heim Bridge alongside the bascule (Figure 6). The new bridge would afford covered parking for 500 employee cars.

In January 1947 the company announced that a new Los Angeles plant was under construction: the Maywood Lincoln-Mercury plant at the corner of Slauson and Eastern Avenues, just across the street from the Chrysler plant in greater Los Angeles. In its three buildings it would employ 1,500 people. That month the new Long Beach plant newspaper, Long Beach News also printed the following:

> "The period since V J day has been an unhappy and costly period of reconversion to peacetime production. The Ford Motor Company has lost millions of dollars since V J day, even after all tax adjustment. But the crisis of this wild aftermath of war seems to have been passed. Our own production [here at Long Beach] though still limited by material shortages, is now steadier. The Company made a modest profit

for the last three months of 1946, and we intend to continue to operate in the black. The economy now stands at a turning point.

"Taking the lead in the USA to combat spiraling costs, the Company has announced reductions in prices of every model of Ford. This is our down payment on a continued high level of production."[92]

In June 1947, the company spent $34,000 at Long Beach to enlarge the front offices. With a design that converted the plant show room into offices, all the sales and service offices were relocated in a new northern section north of the main lobby which itself opened out onto Ford Avenue. With the departure of the sales group from the south wing of the offices, room was then available for the industrial relations head, traffic department, stock checkers, work standards, employment, inspection, and the assistant superintendent in addition to the plant superintendent and plant manager. The move was completed in October 1947.[93]

In July 1947 the Long Beach plant completed its 50,000th post-war car. In August it produced 1,892 Ford passenger cars and 526 trucks. Demand was unfulfilled. In October it had over 50,000 back orders in its sales district. That district included nine Southern California counties, two counties in Nevada, one in New Mexico, and the State of Arizona.[94] Long Beach Ford would continue only to produce Ford passenger cars and Ford trucks for the life of the plant, thus all production figures which lie ahead will be presented in those terms. Ford showed profits in 1947 and every year after in which the Long Beach plant operated. Henry Ford II visited Ford Long Beach twice in 1947, in March and in November and impressed the employees with his warmth. His grandfather, founder of the company, died April 7, 1947.

Plant Improvements

As a Ford executive analyzed the company's 1947 year at the beginning of 1948, he spoke of strikes, new plants, $80 million spent in tooling, new models, and of a dynamometer building at Dearborn. The last improvement would soon come to Long Beach. At the subject plant they were building Ford-8 three-ton trucks, the largest ever assembled at Long Beach and the largest in the history of the company. In March 1948, as the plant rushed into a change over for new passenger models, the entire plant turned out only trucks. Trucks were selling at 216 percent their past volume. Thus for the first time in the plant's history during a changeover, the plant continued to operate. Old fixtures were dismantled and removed clearing 51,200 square feet of floor space for new equipment. New enamel ovens were in place, and new installations included a complete body paint system with down-draft spray booths, high temperature ovens, and floor type conveyors. Jigs in the Body Build department were replaced, and ultra-modern gun welding equipment with electronic controls was installed at a cost of $160,000.[95]

A ten-ton roadabiiity tester was set up in its own smaii buiiding outside the north end of the piant near the end of the chassis iine. An entrance to it was cut through the assembiy buiiding waii so that every new Ford could be tested. This smaii buiiding appears on a 195i drawing and in an aeriai view of the plant taken in 1953. A new circuiar track for road testing in front of the plant (north end) was aiso completed.[96] At the end of the change over work, Plant Manager A.L. Edwards like other managers across the nation, held a Family Day open house to display the new modei. The visitors then toured the whoie piant starting on the dock, going the length of the chassis line and out through the "Hole" where final paint took piace. Refreshments were served and aii the chiidren got a souvenir.[97] Ford executives came out from Dearborn to inspect their three-quarter of a miiiion doiiar job, liked it, but cautioned that production wouid have to make it pay for itseif. They aiso made a survey of a proposed dike to keep tidal waters around the piant under control. That year marked the first of many times TV covered the piant operations.

The 1949 passenger Model was a big event. It repiaced the V-8 and was caiied the B-A during deveiopment and the Tudor when in production. With it Ford saies soared, passing up Chrysier cars in its ciass and piacing Ford second oniy to Generai Motors. Ford Division was formed at this time to separate its operation from that of Mercury and Lincoin.[98] Most new modei parts came from Dearborn and came by raii, no longer by ship. Parts also came from Caiifornia factories foiiowing a iong-standing company poiicy of decentralization. (See Section: Impact on Community.) The first new 1949 car came off the Long Beach iine on May 2i, 1948. Stiii, every seventh unit produced was a truck. The car-truck ratio couid be changed according to needs.

Improvements came steadiiy to Long Beach, and in Juiy 1948 they were provided by Union Pacific Railway. The old steam engines at the dock threw off dirt and grime from the engines, and the open firebox of the engine constituted a fire hazard in the plant. The trains came into the warehouse on a depressed track and were there unioaded. Union Pacific provided diesei switch engines to handie incoming equipment. The piant averaged 425 inbound freight cars per month and 225 outbound cars. The costs to the plant were more than $450,000 a month. In addition the plant paid out $65,000 a month in truck and air freight bills.[99] In September, a new paint oven went in designed to handle all final paint repair work on the compieted cars as they came off the iine. Prior to this touch up was done in the open where atmospheric dirt couid get on the new paint before it was dry. Now, cars would be enclosed in a booth. The booth had severai huge pumps for washing the air, showers for exhausting paint-filled air, and compiete wash units.[100]

In August 1948 the company instigated a nation-wide drive to assure accurate stock records. Prior to this, each plant closed down for an inventory that cost two days of production and a two day loss of pay for all houriy empioyees. Long Beach put much effort into a correction of their stock records.[101]

The First Flood and New Bulkheads

On July 17, 1947, Ford Long Beach had a flood when high tides forced back one to three feet of sewage and sea water into the plant drains. The drains were located under the floor with collection pipes to take the excess water out into the channel. In this event, water entered through the drains at high tide and forced its way to the surface. Where the depressed railroad track entered the northeast end of the building, water was over eleven inches deep. After the cars were assembled, they were normally driven to the yard where they were delivered to the convoy company or the shipping dock. The roadway to those points crossed the now underwater depressed track where the cars stalled and were muddled up.[102]

The water level was measured at four points on the dock during the July 17 high tide, and they showed only one foot six and a half inches to one foot nine inches of free board. The land had dropped 3-4 inches since January, 1947. Projected subsidence figures counted on a worst-case total sinking of 10.9 feet. Combining this with the worst high tide observed, eight feet, the engineers planned on new bulkheads and piling with 8.6 feet of free board in case wind chop and storm and high tide all came at the same time.[103]

The following January work was commenced on a three quarter of a million-dollar dike designed to keep the twice annual high tides from backing up under the plant and flooding the rail tracks and outside the cafeteria and other low spots. The job consisted of driving a three-quarter inch thick wall of steel around the entire waterfront 30 feet into the mud bottom (Figure 4C). The steel wall would come up through another 30 feet of water and rise five feet into the air. On top of that a 31-inch thick concrete wall would rise 12 feet on top of the steel wall, topping about seven feet above the old dock level. In addition to this an earth dike would be placed and faced with armored rock along both the shorelines at the south end of the docks and to the new Heim freeway bridge. All of this was under the supervision of Fred Sach of the Plant Engineering Department in Dearborn. J. H. Davies was the engineer and produced the drawings.[104]

At the same time Davies designed and Sack oversaw the construction of a new pump house. This went up at the south end of the assembly building on the dock just west of the oil house. The concrete foundation for the pump house was three feet thick, and an additional concrete layer was poured below the main floor level as an added protection against surging tides. The pump house held three 7,500 gallon-a-minute pumps which went into action automatically when water reached a certain point. They brought water up from under the plant and spewed it into the ocean. Three penstocks led from the pump house out to the new dike.[105]

More diking protection lay ahead. In July, 1951, E.J. Amar, General Manager of the Port of Long Beach, wrote to R.C. Armour, Plant Manager at Long Beach Ford, letting them

know that subsidence to that date was 8 feet and that they could expect 8-9 feet more. The annual rate of subsidence then was .9 feet and was effecting the approach to the Helm Bridge as well as the Ford plant. In 1952 and 1953 Ben C. Gerwick Inc. of San Francisco was under contract to install a $75,000 steel bulkhead. He also installed 245 linear feet of retaining wall in a "U" shape north of the existing bulkhead under the Helm Bridge towers on the Ford property. The enclosure had a slab floor and was described as an area extension for the salvage yard. Plans were completed in April 1953 by William J. Moran Co. Engineers of Alhambra for more water front protection. These would cost $297,200. This provided for a new arrangement of steel sheet piling commencing at the pump house, running east, and outside the corner of the dock running south along the main dock. A concrete drain trench was part of the job. The Moran plans depict the course of drains throughout the plant and the existing 30 inch drain which discharged into the basin outside of the northeast corner of the Assembly building. In addition, this drawing defines the position of the guardhouse which stood on the roadway leading to the plant from under the Heim Bridge and which had recently been moved a short distance. It also positions the Edison transformer northwest of the guardhouse.[106]

Take Off Into Sustained Production

As 1950 rolled around and the Long Beach Ford people looked back on 1949 they saw a successful year. Average daily production had been 262 units for an eight-hour day or 49,941 cars and trucks for the year. The plant assembled vehicles for 162 dealers getting its major chassis and body parts from the Rouge in Dearborn. It employed between 1400 and 1500 hourly-rated and salaried employees. The operations required the shipment of about 27 carloads of materials daily into the plant and five freight carloads daily out. Some vehicles were shipped out by motor truck convoy.[107]

The most dramatic change to the Assembly building since the addition of the pressed steel building in 1930 came in 1950 in the form of a northern rectangular wing for test and repair. Called the Dynamometer building, (Figures 4B and 4C), it contained modern automobile road testing equipment. Although it did not disturb the facade of the two-story office building, it did cover over most of the bays at the north end of the Assembly building. Its flat roof and lack of style made it a sharp departure from the Albert Kahn design. Executive parking took up space in the west end, and it added 38,930 square feet to the plant. This brought the total space devoted to auto production up to 501, 222 square feet. An aerial view of the plant taken in 1951 demonstrates that the road test track was by then no longer extant. New testing machinery had taken its place. Extensive modernization work started in the plant in June 1951 which introduced the most advanced and modern techniques of automobile assembly line production methods. These included automatic transfer of car bodies from one moving assembly line to another, an automatic paint spray system for painting small auto parts, and paint spray booths that Ford claimed were so well ventilated that workmen did not need to wear respirators.[108]

Robert G. Armour succeeded A. L. Edwards as Plant Manager in May 1951. He had been with the company 30 years and had come to Long Beach as Assistant Plant Manager in 1948. Under him on June 1, 1951, the service stock facility was moved to the new Los Angeles Parts Depot. This freed 66,037 square feet of floor space for manufacturing operations. The Sales Department moved to the same location on September 1 of that year. Part of the space that was now available was the 37,840 square feet of the upper warehouse, which had been filled with 60 boxcars of stock items, representing a weight of over 3 million pounds. About 80 tons of auto stock items were involved in the daily turnover of incoming and outgoing stock handled by the service stock department.[109]

The year 1952 passed uneventfully with the usual Family Day to view the new model and a brief shutdown due to a steel strike in the east. In June 1953 it was announced that Ford would build a new plant 40 miles southeast of San Francisco near San Jose. The Richmond plant would close and all of its employees would transfer to the new plant. New Long Beach office locations were diagramed in the company newspaper of July, 1954. The plant increased their office space and radically changed the location of personnel placing the plant manager at the extreme northwest corner of the office building. This gave him easy access to the new executive garage. The November 1954 company newspaper printed a layout of the plant with instructions for emergency evacuation.

A plot plan drawn in 1951 and aerial views of the plant since that date have shown that four good-sized sheds were built on the property. We have no construction drawings or building permits with which to document these additions, but they are extant, at least in part today (1990). (See Form and Function) Designated sheds A, B, C, and D on later drawings, A, the Carpenter Shop, lay east of the pressed steel building and was "L" shaped to accommodate the oil well there (Figures 4B and 4C). The other three long sheds lay north of it.[110] An additional shed-like structure referred to, we believe, as the Engineering Building, appears on photographs after 1950 parallel to the Assembly building and north of the executive parking lot.[111]

In 1955 as the company experienced record sales, the Distribution Offices were moved out of the District Sales Offices and into Assembly Plant locations to shorten the elapsed time between receipt of orders from dealers and the delivery of vehicles to the dealer. Key punch and IBM cards were introduced to speed up the orders.[112]

Meanwhile, Ford Division had brought out a striking new model, the Thunderbird to compete with the Chevrolet Corvette of 1953. It was a winner from the start, but was not produced at Long Beach where they continued to turn out Fords in the high volume field such as the Mainliner and Skyliner. Upgrading of equipment at changeover marked the news of 1954 as the plant was readied for the new 1955 model. Downtime was an ideal time to do some necessary repair work on the outside of the Plant. At the east end of the

Dynamometer building concrete was poured into a 3,197 square foot area. The smooth surface was to make work easier for the lift operators who handled stock there.[113]

In 1955 Ford Vice-President Robert McNamara toured the Long Beach Plant in both May and December. His visit reflected the maturation of Henry Ford II policy. Henry Ford II's grandfather's formal education had ended when he left the one-room schoolhouse, and Henry Ford I hired men like himself. Those days were in the past. Visitors from the Middle East also toured the plant in their Arab robes. The major plant improvement that year were the flammable liquid unloading facilities. Pipes from these (see section on Form and Function) carried gasoline, oil, and spirits to tanks lying on either side of the oil house.[114]

These were the good years. By 1953 the total payroll to employees at Long Beach had amounted to $8,500,000. The plant established its peak production in September 1953 turning out over 392 cars and trucks per day to give a month's total of 8,614 cars and 1,006 trucks. The annual production for the plant in 1953 was 86,570 units of all kinds produced by a total of 1,800 employees. By April 1954 this total had dropped to 1,700 employees. The plant supplied 163 dealers and had been supplying various trucks and pickups to all branches of the armed services since the beginning of the Korean Police Action in 1950. On November 23, 1954, the plant reached the 500,000 mark in vehicles completed since production had resumed after World War II. Nationwide, Ford sales lead the nation over all competitors, a goal long sought after. As a reminder of how much material this demanded to achieve this, during normal production the daily consumption consisted of 39 freight-car loads and 22 truck loads. Without unloading this amount of stock each day, the plant would not have been able to operate for more than four hours.[115]

Ford was expanding in California, opening a new plant at Rosemead and Washington Boulevards in a suburb called Pico-Rivera for Lincoln and Mercury production. The Richmond plant closed on February 25, 1955, and the new San Jose plant produced its first car on March 1, 1955. Key Long Beach men transferred to both of these plants. The company predicted a continued high in auto sales for the next ten years and noted that the 2-car family was on the horizon.[116]

Demise Period

As wells produced oil on one side of the Ford property and an assembly plant produced vehicles on the other, Ford Long Beach looked like a real success story in 1956 (Figures 3B and 3C). It was in fact heading toward plant closure. Demise did not come all at once, and in fact the plant broke some records in its last years; but subsidence of the property under the plant was constant. It is altogether fitting that an update on its progression should serve as an introduction to this section.

Subsidence in Long Beach had been noted in surveys as early as 1928. Until 1939 elevation changes were small, amounting to an average of about half an inch a year. Development of the Wilmington Oil field led to a rapid acceleration of subsidence, the Long Beach Oil Development Corporation being responsible for pumping oil from under the Long Beach Harbor. It soon found its office sitting in a hole surrounded by dikes higher than the peak of its tiled roof. The Edison Plant south of Ford's site sank 27 feet. The United States Naval Base and Shipyard had sunk eleven feet by 1950 forcing it to close until the beginning of the Korean War. The Ford plant ultimately subsided 14-18 feet.[117] Even as the site dropped to five feet below sea level in the 1950s, the unexpected happened. A flood of water came toward it not from the Cerritos Channel, but from land side.

Flood and Fire in 1956

On January 27, 1956, during a downpour, water collected in the Dominguez Channel which ran toward the Los Angeles Harbor about a half mile east of the Ford plant. Breaking its boundaries at Anaheim Boulevard, it poured over a dike, flooded oil fields there, and carrying oil field sludge along with it, headed for the Ford Plant. The water traveled down the railroad tracks leading to the plant, coursed through the convoy yard where many finished vehicles were parked, and flowed into the assembly building at its north end. Flooding the entire building, the offices, final chassis line, and body paint oven to mention but a few of the locations photographed that day, the water then backed up behind the dike at the south end of the plant and deepened around the Oil House and tanks situated there. On its way it reached the tunnel or "basement" (CA-82-B-7) that lay between the Oil House and the south end of the main building, and rushed up inside of the Oil House.

In the Oil House it caused eight large tanks to float near the "L" in the sea wall and break their connections releasing 30,000 gallons of gas, oil, and paint thinner (CA-82-B-3). An electrical short ignited these flammable liquids and gas causing a massive explosion. Power House Engineer Mark Garret was blown off the south wall, swam for his life to get out of the channel, and was rescued by men in a boat. A huge black cloud of smoke engulfed the south end of the plant, and staff stood by watching their plant going up in flames, or so they thought. Meanwhile Les Schoelerman, Chris Christensen, and Clyde Rone had been caught in a small row boat which was engulfed in flames when the initial explosion took place. Chris and Clyde dived under water using the Navy method of bobbing up with a splash and getting their breath and swimming out and away from the fire. Les walked out and was badly burned.

Plant Manager, Bob Armour, called the department heads together in a strategy huddle, all standing ankle deep in water at the foot of the office stairway, and then led a remarkable example of how labor management teamwork can save a plant. Managers, office help, and assembly floor employees worked side by side at all the tasks. Most of the fire damage was in the Oil House and at the south end of the Assembly plant where windows broke, frames

buckled, and the buff-colored brick was blackened. Water had spread 3 to 4 feet deep over the assembly building floor causing 50,000 square feet of wood block flooring to loosen and float. Cars parked outside were muddied above wheel level and also on the inside. Several Ford executives were injured while trying to direct emergency measures. Fire fighters and 3 fire boats efficiently controlled the flames.[118]

Thanks to a rapid clean-up job, the plant reopened only five working days, ten calendar days, from the day the flood hit. To replace the wooden block flooring, more than 60,000 square feet of concrete were poured along the sides of the submerged-depressed rails, those which allowed carload shipments to enter the plant. After it was all over, salvage firms hauled away over 200 truckloads of damaged parts and materials.

The speed of the clean up and resumption of assembly was an indication that Ford was there to stay, a company spokesman said. Plant Manager Armour talked with Los Angeles officials about controlling waters in the Dominguez Channel, and in March the Ford insurers prepared a suit to file against Los Angeles for $4,000,000 in damages. An editorial at the time argued that Ford was at much at fault as anyone for the problem, since it was pumping oil and causing subsidence. The papers then announced that there would be no suit since Ford and the Los Angeles Harbor had the same insurers.[119]

A plan, "Assembly and Oil Storage-Flood and Fire Reconstruction," was drawn up in February 1956, and executed in April. All damaged face brick on the Oil House and on the south end of the Assembly building (Boiler Room) was replaced. The costs of repair to buildings and machinery were estimated at $2,000,000. In addition Ford lost $3,000,000 in damaged parts.[120] This plant work was followed by a sea wall extension involving the installation of new steel sheet pilings 55 and 60 feet long sunk into concrete and constructed so as to be 18 feet above grade. The existing dock and bulkhead were only about 6 feet above grade. An open drain would collect water on the northeast side of the Carpenter building, Shed "A," and progress east into the Ford turning basin. The estimated cost for this was $225,000.[121] It would be Ford's last effort to keep back the sea.

At this time Ford and all the major private oil operators in the shipyard area legally bound themselves to place their properties under a unified management and to conduct water injection repressuring operations designed to arrest subsidence, conserve oil and gas and increase the maximum economic quantity of oil and gas ultimately recoverable. Between 1960 and 1961 the subsidence ended, but by then the Ford plant was closed for good.[122]

Last Days

In January 1956, despite the loss of working days due to the flood, the Long Beach plant turned out 6,954 units, and in April the company recognized the plant for producing the millionth 1956 Ford, nationwide. A small ceremony commemorated the event with the

plant manager, R.C.Armour imprinting a figure on the windshield of a two-door Fairlane Victoria. In November Long Beach had a new manager, Ralph W. Settles, when the papers reported a two-day closure due to an electrical explosion. Strictly speaking, it was not an explosion but an arcing in a cable. The Ford Division broke production records in 1956, and Vice-President McNamara said the plants were operating at near-maximum overtime to meet an unequalled demand for new 1957 Fords (made in 1956).[123] Ford Long Beach was a successful part of a huge money making venture, and Manager Settles described it as having the latest equipment and production methods, constantly updated.

At the peak in 1956 Long Beach Ford employed 1,700 men on a 53-hour week with a payroll topping $600,000 a month. In 1957 sales lagged, and the labor force was cut to 1,150 men. in February men were working a five-day 40 hour week. Meanwhile, ten of the then 16 assembly plants in the nation had gone on a four-day week. Layoffs were industry-wide. A nation-wide recession had taken hold.[124] In January 1958 the four-day week came briefly to Long Beach. Matters improved in June due to a sales campaign, but on July 26, 1958, the announcement came. Ford would close its Long Beach Plant and move all the employees to its Pico-Rivera Plant.

"Built 28 years ago, the Long Beach plant has become inadequate for modern automobile assembly operations," the company explained. "The consolidation is the latest step in the company's long-range program for improving its West Coast assembly operations." Officials stressed that the decision to consolidate had nothing to do with the city's subsidence problem or the repressurization program. Plant Manager Settles met with employees to inform them of the move.[125] The 1,400 production workers went on overtime in November to meet new model demands and the plant closed March 20, 1959. Pico Rivera where they would work was an industrial district, thus it was presumed most of the workers would continue to live in their present homes. Long Beach was a 22-minute freeway drive from Pico Rivera. There would be a 2-week layoff for 1,350 workers, and they were advised that they could draw checks from the California Department of Unemployment. Ford said that about 10 percent of its hourly labor force had been kept on at Long Beach to carry out the moving operation. Another 250 salaried employees were kept on the job. The newer plant was turning out Mercury cars exclusively, but with the expansion they would produce Fords as well.[126]

Ford put the plant up for sale at a price of $1,250,000. This included the buildings and the 22.5 acre site. The Long Beach Board of Harbor Commissioners immediately had a feasibility study made, but protection of the plant from the ocean made it too costly for them to consider. Too, the City was reluctant to take the property off the tax rolls. They quickly turned it down. Several private companies inquired about the property, but all had the same questions: could the property be kept dry, and could they get insurance to protect themselves and their clients.[127] The Dallas and Mavis Forwarding Company of South Bend, Indiana bought the property January 28, 1960. Paul A. Mavis of Beverly Hills

claimed his to be the third largest auto-transport firm in the nation. He said the firm's primary customer had been Chrysler Corp., but that the company intended to handle many imported cars as weii. He announced pians to use the piant as a Western maintenance headquarters, make adjustments on imported cars, and possibly lease part of the buiiding space.[128]

Dallas-Mavis was the parent company of Robertson Truck-A-Ways, actuai purchaser of the plant, recaiied David M. Lee vice president of the forwarding company. "We started by cleaning out the piace," he continued. "Ford took everything they wanted and couid use, but left behind obsolete assembly iine equipment. We were in the junk business for a while. As we moved foreign cars in, the junk went out."[129] Lee reported that one new feature was a wood-panelied banquet room created in the factory bay. It would handie pubiic and yacht club functions. A boat repair yard at the south end calied Southwest Marina was complete wlth small craft chandlers. Southwest Marina used the Ford gantry cranes to iift small craft in and out of the water. A chemicai firm ieased one of the smaiier buildings. Robertson Truck-A-Ways offered a package deal for car importers: surveyed incoming cars for damage, made repairs, and took them to dealers.[130]

A handful of building permits (1929-1959) document at ieast some of the changes made to the interior of the Assembly building and to the Oil House (Figure 5). None of these really disturbed the integrity of the Kahn structure. That is, they all couid have been removed and the original shell, production fioor and space uncovered or revealed. Alterations to the main assembly building included partitions, drop ceilings, raised floorings, air conditioning, heating, cement work, and office creation. The old Oil House provided accommodations for the Red Witch Cafe designed in 1961 with seating for some 40 people.[131] Plans were drawn in 1961 for 11th Navai District offices, but apparently never acted upon.

Ford sold its oil wells and the eastern acreage to Mobiie Oil Corporation. In the 1970s the Port of Long Beach finally bought the Ford plant and continued the practice of leasing it. In the 1980s Nielsen-Beaumont Marine Inc. had a boat impound yard along the Cerritos Channel, storing small boats in the eastern side of the Assembly building. "Port Terminal" had an office facing on the west side of the Assembiy buiiding and stored cars in the southwestern portion of the building. Angus Biotech leased occupied Shed "D" (Building 3) till 1989.[132]

The International Rectifier Corporation's, Rachelle Laboratories was the Port's largest lessee (CA-82-A-125). It used most of the northeast portion of the Assembly building and built a floor to ceiling wall to mark off its lease iine which ran irreguiarly around a use area not only inside the building but aiso outside at the north end of the plant. The inside space provided for offices, cold storage, and laboratories, while outside Racheiie deveioped tank farms, two powerhouses, buiit an extractor buiiding, an auto storage building, used the

old Ford engineering building (shed), and installed many smaller outdoor units. A small restaurant was located at the extreme southwest corner of the Assembly building. When the Red Witch Cafe closed is not known; however, we do know that at some time in the 1980s the Oil House was demolished.[133]

As demolition plans went forward in the 1990s, Leadership Long Beach, a class made of civic and business people and sponsored by the local Chamber of Commerce, suggested that the Assembly building could support itself as a free port or as a tourist oriented warehouse-salesroom for Pacific Rim countries. Not only would this preserve the building, but also improve the city's quality of life by increasing its retail sales tax revenue.[134] For several reasons these alternatives could not be considered. Earthquake damage in the 1980s, although not severe, prevented public access. Further, the property is in the Port's industrial zone, the commercial-tourist zone being at Queens Way Bay. In addition the property is now three feet below mean low water level, and the protecting bulkhead leaks. To rectify this, the Port plans to raise the property 11-15 feet with dirt fill, an operation that requires building removal first. Hence, studies at the Port are at this writing going ahead to improve the site and to prepare it for use as a marine terminal.[135]

As workers began to rip down the factory in September, 1990 it was once again in the news, and one journalist went out to see it and reported,

> "The air is filled with the smell of burning metal as workers with acetylene torches cut apart the triangles of structural steel that once supported the roof. The wire-reinforced rooftop windows, which once let in light for building cars, are now encrusted with dirt and grime and destined for the scrapheap. Antiquated in design, they are more trouble to salvage then they're worth....In another section of the plant, workers in white coveralls and twin-filter breathing masks that give them the look of startled insects carefully lift off the panels of asbestos-contaminated roofing material that once provided shelter for the work below. Now the panels are just more hazardous waste that needs to be properly disposed."[136]

The old plant was near the end of the line. Demolition was news, but when journalists in August of 1990 hunted for retirees to fill out their stories they were hard to find. Finally one was located who had worked there for a few months in the chaotic post World War II years when the plant had been closed down about half of the time due to sympathy strikes and parts shortages. He recalled a sweat shop, irregular work, and a bad experience.[137] Once his remarks were published letters came in from more authentic retirees, long-term employees who were downright angry with his warped recollections and anxious to set the record straight. The following are excerpts taken from a letter written to the editor of the Los Angeles Times by George "Greg" Gregson:

"That plant really impressed me, a sailor stationed at the Naval Air Base on Terminal Island in 1942. It was then a U.S. Army supply depot with antiaircraft guns high on the roof by the big "Ford" sign. West of the plant was a fleet of barrage balloons protecting strategic L.A. Harbor."

"Discharged from the Navy after VJ Day, I drove down to the plant to apply for a job at Ford. I was put to work with old-timers of the maintenance crew, piecing together the conveyor system which they had dismantled to make way for the supply depot. Two months later, the system was filled with '46 Fords, which were all white to simplify production because the public was clamoring for cars."

"We agree...that in '46 many things were primitive by today's standards... production tooling left much for improvement, but we got the job done in a well-ventilated plant that may have been cold at times, but never with "hot lamps along the lines," as mentioned in [your] article. The next 14 years at Long Beach saw dramatic advancements in employee safety, working conditions, production tooling and facilities. This, coupled with improved product design and assembly methods, resulted in a top-quality product. [The informant] can save his lament that line workers could not afford to buy a car from the Long Beach plant. The fact is that hundreds of employees were proud to buy Fords that they had helped to build."

"I am proud with hundreds of others to have been a part of that great crew in those early days at "The Beach." In my 35 years at Ford we made many trips to the pilot plant in Dearborn, where I was often elected to write the report for our team. I have volunteered to write this final report with the concurrence of a number of that Long Beach crew and in memory of the men who made those early days so special."[138]

Thus, demise in the material life of the plant did not mean a demise in the esteem for it that its workers would carry with them for years to come.

G. IMPACT ON THE COMMUNITY, SOCIETY, AND ENVIRONMENT

Local and West Coast

Going back to the day in 1926 when Long Beach citizens found out that the great Ford factory was to be located in their town, we saw the city fathers adding up the figures on income to the community. The section on Time and Technological change documents and confirms their predictions. However, this dealt largely with payroll and spending of the payroll. Henry Ford, in spite of his huge vertical operation at the Rouge, believed in decentralization, in cottage industry and in spreading out the line of supply. At the beginning, at Long Beach, local purchasing was involved almost entirely in maintenance, repair

and operating materials. The 1930s and post-World War II operations under Henry Ford I brought little change. Still, some progress had been made in the decentralization policy as Ford was buying $15,000,000 worth of West Coast manufactures annually to supply its Long Beach and Richmond plants. This involved 90 suppliers. Parts included bumpers, chassis springs, cushion springs, batteries, paint, upholstery, wheels, gasoline tanks, tires, and other rubber parts.[139] With the advent of Henry Ford II as president of the company came a new policy, and by 1949 6,000 small firms on the West Coast were helping feed the assembly lines and conveyor network with $50,000,000 worth of materials.[140]

The campaign to use West Coast suppliers began in February 1947 when none other than Louis Disser, a Ford purchasing executive was sent out to the Long Beach plant over his private wish to resign from the company at that time. Setting up his headquarters in the Long Beach office building he sent for Albert J. Browning, Ford vice-president and director of purchases. They arranged a buyers' program at the Ambassador Hotel, Los Angeles on February 17th to 20th, 1947. Setting out blueprints and samples of 2,600 items which the company wanted to buy, they then sent out ten thousand invitations to Coast manufacturers.[141]

Even before the buyers program, Browning announced that three new California firms had been given contracts for a total of $1,900,000 worth of parts: Cannon Electric, Bendix Aviation, and the R.H. Osbrink Manufacturing Company. Henry Ford II, Mayor Fletcher Bowron, and Lieut-Governor Goodwin Knight spoke at the buyers program where Ford had planned on 650 for lunch. Instead, 1,300 attended. After that exhibit, the display of the 2,600 parts was moved to the Carpenter Building (Shed "A") at the Long Beach plant. By September, 1948 Ford had increased its West Coast buying by $20,000,000 and was propagandizing it in the company newspaper. Pictures showed a worker in a suppliers factory finishing a product such as a battery and a second picture where a Long Beach worker dropped the battery into place at final assembly.[142] In 1949 the company reached its $50,000,000 Coast purchasing goal. It was buying everything from paper clips to repair ovens, in fact everything not coming out of Dearborn, Michigan. At the same time it was paying over $5,000,000 in local taxes.[143] Ford Long Beach was a major contributor to the community.

When the plant closed much was printed in the local papers in regard to income loss. Yet, as one columnist wrote, of the 1,087 people estimated to be employed at the local plant, only 468 lived in the city. He observed that the city would not really lose the purchasing power of those 468 people. Ford had brought those people to the community permanently, for the most part, and they would commute to Pico-Rivera.[144] Further, Ford employees were a vital part of the community having taken part in Red Cross, Community Chest, Boy Scouts, and other local organizations. Their athletic program as well had placed them in the community at large. Their social contribution is not measurable in figures, but was also major.

Regional and National Impact

Ford had led in bringing industry to Long Beach and importantly in opening up its harbor (CA-82-A-48). Its economic impact on the greater region was not only on suppliers but on the 163 dealers it supplied. In 1948 two percent of its output went to Baja California where passenger cars sold as fast as they arrived in Mexicali, Tijuana, and Ensenada. The rest of Mexico got its cars from Mexico City. As for new products of significance produced here and of national impact, the observation must be negative. Ford Long Beach got its signals and its new products from Dearborn as noted elsewhere. It was but one in a network of Ford assembly plants; when one would be closed, another plant would take up its activities. Its significance was to southern California.[145]

Ford's leaving also had its impact. The announcement was a jolt to the community. But Ford had helped notably in bringing the city to a new stage in development. It was an industrial center with a convention and tourist trade. The harbor and oil, however, were the real gold in Long Beach. Ford had stayed on and weathered the subsidence, and was a major asset in harbor recognition.

Site's Effect on the Physical Environment

Development of the mud flat on Cerritos channel which became the Ford site made a positive contribution to the physical environment. The street running along its west side (the front) was named Henry Ford Avenue (Figures 4B and 4C), and it along with the water tower and Ford sign on the Assembly building became harbor landmarks. Preservationists at this writing cherish them. In the section on Labor, it was demonstrated that the quality of life on the site and brought home by the workers was positive overall. The plant, like all Ford installations, was kept squeaky clean. The uses to which the plant has been put since 1959 have not perpetuated that image. Nevertheless, Ford's heavy spending on the necessary diking to keep its site from being inundated by sea water in fact preserved it. The basic physical environment is still an improved one, a developed harbor front with two sides exposed to the Cerritos Channel. Ford bought an unusable site, assisted in building bulkheads and bringing in fill, and sunk pilings. It maintained the property, and it left a valuable asset to the Port of Long Beach.

H. INTANGIBLES: HENRY FORD, SOCIAL RESPONSIBILITY, AND PROGRESS

In addressing this topic we may rule out, at least as critical, those attributes such as ambition or modesty, pride, greed, and traditions. Aesthetics were embodied in the Albert Kahn design of the buff brick and glass Assembly building, and much effort went into the product to make it aesthetically pleasing (Figure 1 and CA-82-A-53). On the other hand, Henry Ford I and his creations such as the subject plant, would bring to mind immediately a sense of social responsibility and a belief in progress. As a young man he pursued his

dream (ambition) of producing an internal-combustion-engine driven auto in large numbers. He did this, and turned immediately to the impact his car, its production, and labor management would have on society. Robert Lacey's account of Ford is about as negative in respect to the early Henry Ford as one can find; yet even he gives considerable space to Ford's responsibility to his workers: hiring blacks and handicapped in large numbers, decent pay, and the modern and airy work place.[146] Henry Ford II's program of minority hiring and frank recognition of the union, too, was far ahead of the times and a shock to some of his industrial colleagues. Long Beach Ford profited from Dearborn policy.

Economic progress spelt out by the assembly line and mass production made the Ford's billionaires, but it also meant progress in the quality of life for the common man. It allowed him to drive away from the city to the green of the country. Ford believed that was progress. A family-owned corporation, it put 60 percent of the voting power into common stock in 1955. These apparently socially responsible moves are fully documented in biographies of Ford and accounts of the Ford empire and need no further description here. At the Long Beach level, there is no question that this first southern California modern assembly plant brought progress to the city as noted in the sections above.

Ford believed that progress meant a decent work place. He also wished for a machine that could take the hard work out of farming. These attitudes were recorded on the day after his death in April 1947 when F.F. Bullett, Service Stock, at Ford Long Beach was interviewed. Said Bullett,

> "I worked at the old tractor plant in Dearborn from 1917 to 1921, and I used to see Mr. Ford nearly every day. The tractor plant was his pet, and although the men got to work at 6:15, Mr. Ford was always there before them. He would wave a greeting when he saw you coming. Mr. Ford would go through the plant, stopping here and there, ask how a man was getting along."
>
> "I didn't know this when I first worked there, and one day I said to the man next to me, "Where is that Mr. Ford? Why doesn't he come around some time?" 'Come around,' said the man, 'Why you've talked to him a half dozen times.' After that I discovered what he looked like, and I can see him now: slender, grey-haired, wearing an old pair of pants, and boots and standing with one foot propped up on something, chewing the end of a straw, and talking to one of the workmen."[147]

Bullett was among the many workmen who had worked at Ford plants most of their lives, moving out west to work at the coastal plant. He had completed 30 years with the company when he gave the interview. Completing 30 and 35 years of work at Ford plants was a common occurrence as may be seen by the many pictures of awards in the company newspaper.[148] An editorial in the Los Angeles Times on the day of Ford's death claimed, "He changed the world. Southern Californians can testify...without the automobile their

spacious civilization would not exist." The editor apparently gave Ford's breakthroughs in mass production credit for progress as we know it in California. In spite of grievances, Ford's social responsibility created for him at Long Beach a reliable work force, created a car for the common man here on the West Coast, and brought industrial progress to the city and harbor of Long Beach.

1. SUMMARY AND SIGNIFICANCE OF THE FORD MOTOR COMPANY LONG BEACH ASSEMBLY PLANT

The Ford Motor Company Long Beach Assembly Plant is important in that it played a significant part in the changes that occurred in southern California and the nation in the 1920s. Ford Motor Company built this plant during 1929-1930 as one of six contemporaneous assembly plants constructed in the United States. The Long Beach Assembly Plant is the only assembly plant outside of Michigan that had a Pressed Steel Department as an integral part of the operations. The overall purpose of these assembly plants was to expand production of Ford's Model A, which replaced the Motel T in 1927.

Nationally, the decade was one of growth in the production and consumption of consumer goods. Radios and washing machines became common in American homes. A car that many people could afford was the symbol of this growth. In 1926, for example, Ford offered a Model T for sale at under $300 and a Chevrolet sold for $700; at the same time, workers in manufacturing earned about $1300 a year and clerical workers, about $2300. The development of mass production on a moving assembly line was the thing that made it possible to manufacture radios, washing machines and cars and sell them at prices many people could afford. The moving assembly line was developed by Henry Ford to expedite the manufacture of automobiles at a low cost. As a result, the Ford Motor Company became a leader in the industry and Ford, himself, seemed to epitomize the spirit of the time.[149] The assembly plant he built in Long Beach was an extension of his influence into southern California.

Southern California's growth in the 1920s was illustrated by its expanding population. In part at least, that growth was stimulated by the development of the national automobile industry, led by the Ford Motor Company, and the demand it created for petroleum products from motor oil to asphalt to cover roads to gasoline. Previously discovered southern California oil fields expanded production while promoters explored and developed new fields. The wealth generated by selling the oil taken out of the ground created prosperity throughout southern California and led to dramatic changes in cities near oil fields. Long Beach, for example, enjoyed a million-dollar-a-month building boom during the 1920s. The million dollars bought handsome office, apartment and hotel buildings downtown as well as suburban homes for wealthy oil barons and ordinary workers. Both rich and not so rich could live in the suburbs and commute to work in their cars. Of course their cars burned refined southern California crude which further stimulated demand for

oil. As a result, people abandoned the local Pacific Electric trolley system in favor of driving their own cars and soon demanded better roads including a later symbol of the southern California lifestyle, the Freeway.[150]

The growth of southern California in the 1920s far outstripped northern California although the north had dominated the state since the middle of the nineteenth century. Just as gold was the mineral that had earlier stimulated growth in the north, oil, and the cars that used it, stimulated even greater growth in southern California in the twentieth century. As a result, southern California's population outgrew the north and over the rest of the century, came to dominate state political, economic and cultural affairs. One illustration of this is that other companies that prospered from the boom in automobile production also chose southern California rather than northern California or Oregon, although those two were more centrally located on the Pacific coast, for their plants. Goodyear, Goodrich and Firestone tire and rubber companies, for example, all built their western manufacturing plants in southern California. This growth in manufacturing in southern California is also reflected in Ford's decision to locate its largest assembly plant and one pressed steel operation outside of Michigan in Long Beach.[151]

The Long Beach plant was located in the harbor area, right across the boundary line from Los Angeles. Both Los Angeles and Long Beach harbors expanded as a result of the economic prosperity of the 1920s. As oil production and manufacturing expanded, facilities for importing other raw materials and exporting oil and manufactured products grew. Both Long Beach and Los Angeles city governments actively sought to increase this development by encouraging industries to locate in the harbor area. One of their allies in this activity was the Union Pacific Railroad which sold the land to Ford on which the plant was built. That railroad, like the notorious Southern Pacific, owned large pieces of California real estate that it, or its predecessors, had acquired at low prices from cities anxious not to be left outside the state's railroad network when it was being built in the nineteenth century. By the 1920s, the power of the railroads had been limited by construction of competing railroad systems, a reform movement in state government and the growth of alternative means of transportation. So the railroads were in the business of finding buyers or developers for their substantial real estate holdings.[152] One that the Union Pacific found in Long Beach was Henry Ford.

The Long Beach assembly plant itself embodies the distinctive characteristics of a genre of industrial building. it was designed by Albert Kahn, the architect most responsible for the creation of an enormous articulated structure with large interior manufacturing areas that also had abundant natural light and plenty of exterior openings to provide efficient access for bringing in raw materials and tools, and shipping out finished products. The Long Beach plant was among the last of this type introduced by Ford nationwide in the 1920s during a period of decentralization and modernization. Opening in 1930, at the end

of the period, it benefitted from experiences Ford gained in the east. Ford Motor Company operations at the Long Beach Assembly Plant ceased in 1959.

J. RESEARCH METHODS

Introduction

The Port of Long Beach, owners of the Ford Motor Company of Long Beach, wanted to redevelop the property. This action required a 404 permit from the Army Corps of Engineers, Los Angeles District, invoking Section 106 of the National Historic Preservation Act of 1966, as amended. The Chambers Group, Inc. was called upon by the Port of Long Beach to conduct a National Register Eligibility assessment of the Ford Motor Company Plant. This was accomplished in May of 1990 through archival research, local interviews with Long Beach preservationists and heads of their historical organizations, an on-site study, and on-site photography. The plant was found eligible for the National Register of Historic Places; however, the Port of Long Beach wanted to demolish the plant for their proposed development. A Memorandum of Agreement (MOA) signed by the U.S. Corps of Engineers, the California State Historic Preservation Office and the Advisory Council on Historic Preservations mandated Historic American Engineering Recordation (HAER) documentation of the property prior to its demolition.

The Port of Long Beach retained the Chambers Group, Inc. to undertake HAER documentation in late May of 1990. The documentation team included research historians, architectural historians, an historical archaeologist, and an historical buildings photographer.

Archival Methods

All members of the team participated in on-site inspections before commencing the archival research. Even before looking at plant history documents, the historians attempted to put their work in its historical context. Using classic methodology, the historians consulted published works upon Henry Ford, Albert Kahn, the development of industry in the United States and in southern California, Long Beach and its Harbor, and the plant itself.[1] Local sources used for the original assessment were reviewed and researched at greater depth. These included documents and photographs in the archives of various departments at the Port of Long Beach, a clipping file at the Long Beach Public Library, Long Beach City departmental files, California State University, Long Beach Library, Special Collections, and Oral History Collections, local newspaper files, University of California, Los Angeles libraries; and the archives of the Historical Society of Long Beach. The Historical Society was found to have some historical photographs of the plant and its harbor environment and several hundred dozen taken inside and outside the plant by Lawrence Inman. Inman was a local commercial photographer who was employed by the

Ford Motor Company to photograph the plant and this explains why some of his photographs may be found in both Albert Kahn's and In the Ford Museum's files.

In a drive to exhaust California sources, the historians covered the Long Beach Department of Building and Safety Building Permit files, Whittier Coiiege, the Huntington Library, the Los Angeles Museum of Natural History, the Harrah Foundation, National Auto Museum, and newspaper archives. A search was made for interviewees of the Ford Plant era, and the team's oral historian conducted interviews. Present-day Ford distributors were questioned in regard to the matter of assembly plants in Caiifornia past and present, and data was coliected upon their closures.

The search was then carried to Michigan, to the Albert Kahn Associates Archives, Ford Industrial Archives in Redford and to the Henry Ford Museum Archives in Dearborn. Darleen Flaherty, the Ford archivist, searched the industriai Archives and mailed us ali materiais on the Long Beach Plant. information Research Services of Southfieid, Michigan searched the Ford Museum in concert with the museum archivist, Linda Bliss. Material was also found at the Nationai Archives, Washington D.C. Data drawn from these sources included historical photographs, fioor pians, assembiy iayouts, and copies of Ford News.

In order to obtain the original drawings for the plant our project manager contacted Albert Kahn Associates, Detroit, learning that the compiete original set was extant and in the Kahn office. The historians aiso collected subsequent drawings of additions and changes to the plant, its auxiiiary buildings and its improved bulkheads and piiings which were importantiy found at the Port of Long Beach and at the Long Beach City Engineer's offices. Meanwhile our photographer had taken appropriate HAER shots of the subject Ford Plant. These and copies of the original Kahn drawings held at the Port of Long Beach, and drawings of changes were taken to the National Park Regional Offices in San Francisco. There, the Chief Preservationist David Look and his associate Ann Huston made the decision to approve our photographs and the extant drawings as sufficient documentation to meet HAER standards. Arrangements were made to provide Look's office with a critical selection of the some 100 Kahn drawings. A final selection was later made in Look's office, and photographically reproduced to archival specifications from the orlginals in the Albert Kahn Associates office.

Prior to demolition over a hundred 35 mm photographs were taken of plant details to assist the historians in their writing.

Field Methods

All members of the HAER team made several on-site inspections of the Ford plant. On-site inspections were also made in the company of Architect Louis Skelton, Chair of the Long Beach Cultural Heritage Commission, with Architect Kelly Sutheriin McLeod a

member of that Cultural Heritage Commission accompanied by Ruthann Lehrer who is the City of Long Beach's Neighborhood and Historic Preservation Officer, with Don Thomas who worked briefly at the plant and with other architects and historic preservation specialists employed by Chambers Group Inc.

Architectural photographer David De Vries photographed fifty-nine interior and exterior views of the Ford Motor Company Long Beach Assembly Plant between June 18-22, 1990. He used a 4" x 5" Sinar F view camera with full tilt, swing, and shift capabilities for architectural perspective correction. He used Schneider lenses of 90 mm, 180 mm, and 240 mm to cope with the extremes of cramped working space, as in the boiler room, or the need for long views with an identifiable subject in the distance, as in shooting down the rail spur along the dike. Approximately half the exposures were made on Kodak Plus-X film, and half on Kodak Tri-X film. De Vries used Polaroid Type 52 instant 4"x5" film to test exposure, focus, and composition before exposing the archival negatives.

The Historical Society of Long Beach produced 48- 8x10" archival negatives from selected Inman Co. and other historic negatives on file at that institution.

Dietrich Floeter, an architectural, industrial and environmental photographer conducted the photographic photocopy work, excluding reproduction of the historic negatives. Mr. Floeter produced three sets of archival prints for each of the 48 photocopied historic negatives. In addition, Mr. Floeter used special studio equipment with a large format 8"x10" camera to photocopy 36 selected copies of Kahn's architectural drawings. The selected 36 drawings had been reproduced onto vellum by Albert Kahn Associates, Inc., from the original drawings on file at that office.

The negatives were processed in accordance with the National Park Service's photographic specifications for HABS and HAER work, and printed on Oriental Seagull doubleweight paper. Films and prints were washed, hypo cleared, and re-washed for greater than the times specified for ensuring archival permanence. Prints and films were then submitted in acid free envelopes and mount cards for curation at the Library of Congress, Washington, D.C.

Data Limitations

The historians wish to note four areas wherein the data was limited. First was that of published sources. Histories of Long Beach and of the harbor have given the Ford Plant good notice, but no effort was put forth to document the inside workings of the plant or its own chronological history. Histories of the Ford Motor Company center upon the Detroit headquarters, on the Rouge Plant, and upon Ford the man. There is little to be learned of Long Beach in particular, as it is relegated to a few lines along with the many other assembly plants in the United States. One major work referred to it as the Long

Branch plant. in fact, histories of the company could not be counted upon as sources from which we could meet the demands of HAER field instruction. We know from these published works nothing of Ford's feelings for the plant. The same may be said of works upon its famous architect Albert Kahn.

Secondiy, we could learn little in books or articles of the organized labor history of this plant. Histories of the Ford Company drew out the conflict Henry Ford had in Detroit, but this did not satisfy HAER field instructions which asked for data specific to this plant. Thus, on Ford labor at Long Beach our sources were limited to old newspapers, interviews, and company publications. The latter, of course, entertained considerable bias. Yet, the 1937-1941 newspapers and conversations with elderly informants carried us a long way toward finding out what happened in the turbulent, pre-union contract years.

Third to be mentioned are the interviewees themselves. When the plant closed on March 20, 1959, nearly all employees were given the option to transfer to Ford's Assembly Plant at Pico-Rivera, an industrial suburb of Los Angeles. That plant has long been closed; nonetheless, the historians searched present-day telephone books for names and searched for Long Beach sources, meeting with scant success. Unexpectedly, the sources opened up. During the demolition process an inaccurate newspaper article was published which quoted one short-time employee who called the plant a sweat shop. At this, a good number of highly satisfied retirees wrote in registering protest. We contacted them, and through their network were able to conduct many fruitful interviews. Thus, our research in this area became much improved.

Last to be mentioned is the absence of a reuse study. Private citizens did formulate tentative plans, chiefly under an umbrella organization called "Leadership Long Beach." Wishing to save some industrial places of historical interest, this group suggested setting up a self-supporting free port at the old plant to serve Pacific Rim countries. No study was made on the basis of this idea primarily because the Port of Long Beach could not entertain the idea of reuse until the site was raised. For this, the building had to be removed first.

PART III. SOURCES OF INFORMATION

A. ARCHIVAL SOURCES AND ABBREVIATIONS

Albert Kahn Associates Archives (AKAA)

California State University, Long Beach (CSULB)

Ford Industrial Archives (FIA)
Box 3, Accession AR-65-5, Long Beach Folder;
Ms. Darleen Flaherty, Archivist, Ford Industrial Archives, 26305 Glendale, Redford, MI 48239; (313) 592-2570.

Henry Ford Museum (HFM)

Long Beach, City of (LBC)

Long Beach, Port of (LBP)

Long Beach Public Library (LBPL), "Ford Motor Company" and George Bentson Scrap Book, History Section.

National Archives, Washington, D.C. (NA)

B. HISTORIC PLANS AND DRAWINGS

The following list includes titles of historic drawings, date, and repository:

Area Extension for Salvage Yard, 1952, LBC, Engineering.
Assembly and Oil Storage Flood and Fire Reconstruction, 1956, LBC, Engineering.
Bulkhead for Ford Motor Company Plot Plan, 1948, LBC, Engineering.
Cafeteria Equipment and Partition Layout, 1967, LBC, Engineering.
Flamable Liquid Unloading Facilities, 1952 and 1955, LBC, Engineering.
Ford Long Beach Assembly Plant Plot Plan, 1951/1954/1955/1958, LBC.
Ford Property, Berths 95-97, 1990. LBP, Engineering.
International Rectifier Corporation, Rachelle Laboratories, Inc., 1981, (printed on Kahn 1927 drawing), LBP, Engineering.
Layout Showing Ford Property and Ford Oil Wells, 1940, FIA.
New Site of the Ford Motor Company Assembly Plant [Long Beach], Albert Kahn, 1927, PLB, Engineering.
Office [Ford Long Beach], 1st Floor Plan, 1939, FIA.

Plant Layout, Ford Motor Company Long Beach, CA., 1940, FIA.
Plot Plan [Ford Long Beach], FIA.
Plot Plan, Ford Motor Company Long Beach, 1942, FIA.
Plot Plan, Long Beach Plant, 1947, FIA.
Sea Wall Extension, Ford Motor Company, Long Beach, 1958, LBC, Engineering.
Sheet Pile Sea Wall, 1951, LBC, Engineering
Sheet Pile Bulkhead, 1953, LBC, Engineering.
Sea Wall Extension, 1958, LBC, Engineering.

The following List constitutes an Inventory and Selected Photocopies of Albert Kahn, Inc., Drawings for the Ford Motor Company Long Beach Assembly Plant, California. On file at the Engineers Office, Port of Long Beach, California. These drawings are copies from the original architects drawings formerly produced by Albert Kahn, Inc., now in possession of the successor firm, Albert Kahn Associates, Inc., Architects and Engineers, Albert Kahn Building, 7430 Second Avenue, Detroit, Michigan 48202-2798; (313) 871-8500.

INVENTORY AND SELECTED PHOTOCOPIES OF ALBERT KAHN, INC., DRAWINGS FOR THE FORD MOTOR COMPANY LONG BEACH ASSEMBLY PLANT, LONG BEACH, CALIFORNIA; ON FILE AT THE ENGINEERS OFFICE, PORT OF LONG BEACH, CALIFORNIA (SERVICE: ORIGINAL PLANS ON FILE, ALBERT KAHN ASSOCIATES, INC., ARCHITECTS AND ENGINEERS ALBERT KAHN BUILDING, 7430 SECOND AVENUE, DETROIT, MI 48202-2798; (313) 871-8500).

Job No.	Sheet No.	Date	Description	Photo-copied
1347-A	1	01-29-27	"Power House FMC; Basement Plan and Miscellaneous Details" (Basement Floor Plan, Plot Plan, Details: Stairs, Rubbish Bin)	
	1-S	01-29-27	"Power House for FMC; Foundation Plan" (Foundation Plan; Detail of Vibration Joint between Engine and Floor)	
	2	01-29-27	"Power House for FMC; First Floor Plan" (Boiler/Engine Room)	
	2-S	01-29-27	"Power House for FMC; Details of Foundations" (Sections of Foundations)	
	3	01-29-27	"Power House for FMC; Roof, Baloony - Plan, Door Schedule" (Plan of Boiler Runway, Roof Plan, Detail of Roof Scuttle)	
	3-S	01-29-27	"Power House for FMC; Roof Over Pump Room and Foundation Details" (Slabs Over Trash Bins; Foundation Plan; 100,000 Gallon Water Tank; Foundation for Oil Tanks; Sections)	
	4	01-29-27	"Power House for FMC; North, South, East West Elevations"	*

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Job No.	Sheet No.	Date	Description	Photo-copied
1347-A (Cont'd)	4-S	01-29-27	"Power House for FMC; Roof Plans and Tranaverse Section" (Roof Plan and Top Chord Bracing, Lower Chord Bracing, Transverse Section (Truss), Typical Crane Bracket, Column Base)	
	5	01-29-27	"Power House for FMC; Section 'A-A'; Tunnel; Stair Details (Elevations of Stairs and Toilet, Shower; Large Section of Building, Engine Room)	
	5-S	01-29-27	"Power House for FMC; Elevations and Details" (W, S, E, Elevations, Swag Frames, Truss Section, Stack)	
	6	01-29-27	"Power House for FMC; Section BB and Details" (Section of Boiler Room, Engine, Detail of Door Elevations, Curbs)	*
	6-S	01-29-27	"Power House for FMC; Plan of Floor and Platform" (First Floor Plan, Boiler Platform Plan, Detail and Section of Brackets)	
	7	01-29-27	"Power House for FMC; Scale Details of Exterior Walls" (Partial Elevation/Section, Partial Plan, "Void Elevation Main Entrance," Details)	
	7-S	07-14-27	"Power House for FMC; Plan, Sections, Showing Revision" (Partial First Floor Plan Showing Revision, Partial Foundation Plan Showing Revisions)	
	8	01-29-27	"Power House for FMC; Pump Room Details - Storage Tanks" (Plan of Pump Room; Section OO, etc.; Oil Storage Tank Details)	
	9	07-14-27	"Power House for FMC; Revision Number 2; Note: This Sheet was Issued First with Bulletin 1" (Elevations of Main Entrance, Plan, Section; Sections - Toilet, Tunnel, Partial Plan of First Floor)	
1347-B	1	01-29-27	"Oil House for Ford Motor Company" (FMC) Floor Plan, Elevations and Sections, (W, E, S, Elevations SEC 'BB', AA, Floor Plan)	*
	1-S	01-29-27	"Oil House for FMC; Framing and Piling Plans" (Frame Plan, Piling Plan, Sections)	
	1-M	05-14-27	"Oil House for FMC; Foundation, Plot Plan and Details"	*
	2	01-29-27	"Oil House for FMC; Foundation Plan - Sections and Details (Oil House: Storage Room, Tank Room, Sections, Foundation Plan)	*
	2-S	01-29-27	"Oil House for FMC; Roof Framing" (Truss, Roof Plan, Streas Diagram)	

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Job No.	Sheet No.	Date	Description	Photo-copied
1347-B (Cont'd)	3	01-29-27	"Oil House for FMC; Roof Section and Tunnel Details" (Detail of Rook and Side Walls)	
	4	01-29-27	"Oil House for FMC; Door Details" (Plan of A, B, C, D, E Doors)	
1347-E	1S	01-27	"Dock for FMC; Piling Plan"	
	2S		"Dock for FMC; Section and Details"	
	3S		"Dock for FMC; Deck Plan of Dock"	*
	4S		"Dock for FMC; Typical Deck Details"	
	4	06-4-29	"Dock Design for FMC" (Plan)	
	5	03-23-29	"Dock Design for FMC"	
	5S		"Dock for FMC; Details of Fender System"	
	6S		"Dock for FMC; Piling Plan"	
	7S	09-29	"Dock for FMC; Section and Details"	
	8S		"Dock for FMC; Deck Plan of Dock"	
	9S		"Dock for FMC; Typical Deck and Slab Details"	
	10S		"Dock for FMC; Details at South End of Dock"	
	11S		"Dock for FMC; Details"	
1347-F	1 of 42		"Plot Plan" "Assembly Building for FMC, Long Beach, California" (Plan of Assembly Building, Warehouse, and Addition for Pressed Steel Building)	*
	1M	01-19-27	"Assembly Building; FMC; Foundation Plan" (Underground Mechanical Work)	
	1S	02-04-27	"Assembly Building; FMC; Piling and Foundation Plan"	
	1S (=20)		"Assembly Building, FMC; Piling and Foundation Plan"	
	2 of 42		"Assembly Building, FMC; Foundation Plan and Details"	
	2M		"Assembly Building; FMC; Foundation Plan" (First Floor Plan, Mechanical	
	2S		"Assembly Building; FMC; Piling Plan of Office"	

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Job No.	Sheet No.	Date	Description	Photo-copied
1347-F (Cont'd)	2S (=21)		"Assembly Building, FMC; Piling Plan of Office"	
	3 of 42		"Assembly Building, FMC; First Floor Plan"	
	3M	01-29-27	"Assembly Building; FMC; Foundation Plan" (1/8" Scale of Offices, Mechanical Work Only)	*
	3S		"Assembly Building; FMC; First Floor Framing Plan Roof Plan and Column Schedule"	
	3S (=22)		"Assembly Building, FMC; Roof Plan and Column Schedule)	
	4		"Assembly Building, FMC; Roof Plan, Cross Section and Detail"	*
	5		"Assembly Building, FMC; Elevations and Door Details" (West Elevations of Office, Warehouse; Elevation of Office)	*
	5S		"Assembly Building; FMC; Longitudinal Section and Truss Detail	*
	6		"Assembly Building, FMC; North, East and South Elevations"	*
	6S		"Assembly Building; FMC; Trusses in Assembly Building"	
	7		"Assembly Building, FMC; Exterior Details" (Details of Entrance Doors; West Elevation; Details of Lobby and showroom Windows, and Double Hanging Windows)	*
	7S		"Assembly Building; FMC; Office Building Framing Plans"	
	7S (=26)		"Assembly Building, FMC; Office Building Framing Plan"	
	8		"Assembly Building, FMC; Sections and Roof Details" (Longitudinal Section; Flashing; Expansion Joint; Gutters Details)	
	8S		"Assembly Building; FMC; Transverse Section of Warehouse"	*
	8S (=27)		"Assembly Building, FMC; Transverse Section of Warehouse"	*
	9		"Assembly Building, FMC; Toilet Section and Details" (Toilet Elevations, Stair Details, Toilet Plan)	*
	9S		"Assembly Building; FMC; Elevations"	

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Job No.	Sheet No.	Date	Description	Photo-copied
1347-F (Cont'd)	9S (=28)		"Assembly Building, FMC; Elevations" (Structural)	
	10		"Assembly Building, FMC, Plans and Details at Warehouse" (First Floor Plan; Toilet Plan; Second Floor Plan)	
	10S		"Assembly Building; FMC; Miscellaneous Details"	
	10S (=29)		"Assembly Building, FMC; Miscellaneous Details"	
	11		"Assembly Building, FMC; Warehouse Section and Details" (Large Cross Section, Vertical Doors)	*
	11S		"Assembly Building; FMC; Truss Details"	
	11S (=30)		"Assembly Building, FMC; Alternate Trusses"	
	12		"Assembly Building, FMC; Warehouse Details" (Stairs, RR Doors, Expansion Joint, Pylons, Roof)	*
	13		"Assembly Building, FMC; Details of Office and Sections" (First Floor Plan)	*
	14		"Assembly Building, FMC; Office Sections and Details" (Office Partitions, Stairs, Bathrooms)	*
	15		"Assembly Building, FMC; Miscellaneous Details" (Gutters, Loading Platform)	*
	16		"Assembly Building, FMC; Freight Elevator Details"	*
	17		"Assembly Building, FMC; Tunnel, Trusses under Tank, etc." (Includes Stack Details)	*
	18		"Assembly Building, FMC; Alternate Details of Tile Roof" (Monitors)	
	19		"Assembly Building, FMC; Expansion Joint Details"	
	23 (?)		"Assembly Building, FMC; First Floor Framing Plan" (Another Drawing in Miscellaneous Rack was Mislabeled)	
	100M	02-04-29	"Assembly Building, FMC Plan of Underground Sprinklers and Fire Protection System"	
	101M		"Mixer for Automobile Wash Rack/Faucet Detail"	
	103S		"Detail Hot Rails on Crane Girders"	

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Job No.	Sheet No.	Date	Description	Photo-copied
1347-F (Cont'd)	104S		"First and Second Floor Crane Running/Splice in Hotrails"	
1347-G	1	11-20-30	"Oil House; FMC; Floor Plan, Elevation, and Miscellaneous Details"	*
	2	11-20-30	"Oil House; FMC; Sections and Details"	*
	1S	11-20-30	"Oil House; FMC; Plans, Sections and Details"	*
1347-J			Unknown	
1347-K	1M	02-28-29	"FMC; Boiler House Assembly Plant - Plan" (Good Mechanical Data)	*
	2M	03-06-29	"FMC; Boiler House Assembly Plant - Sections" (Good Mechanical Data)	*
	3M	03-06-29	"FMC; Boiler House Assembly Plant - Boiler Setting" (Good Mechanical Data)	*
	4M	03-06-29	"FMC; Boiler House Assembly Plant - Soot Blowers, Injectors and Oil Piping"	
	5M	03-06-29	"FMC; Boiler House Assembly Plant - Detail of Breeching"	
	6M	03-06-29	"FMC; Boiler House Assembly Plant - Drain Lines and Floor Openings"	
	7M		"FMC; Boiler House Assembly Plant; Walkways"	
	100X	12-04-29	"Location of Fuel Oil Tanks, FMC"	
1347-M	1	?	"Addition for Pressed Steel Department for FMC; Foundation Plan"	
	1M	06-18-30	"Assembly Building, FMC; Foundation Plan for Mechanical Work Only" (Also Sewer Manhole)	
	2	06-17-30	"Addition for Pressed Steel Department for FMC; First Floor Plan"	*
	2M	06-18-30	"Assembly Building, FMC; First Floor Plan" (Toilet Plan/Piping, New Pressed Steel Building - First Floor Plan)	
	3	06-17-30	"Addition for Pressed Steel Department for FMC; Roof Plan and Details"	
	3S		No Title - "Detail of Crane Girder"	

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Job No.	Sheet No.	Date	Description	Photo-copied
1347-M (Cont'd)	4	06-17-30	"Addition for Pressed Steel Department for FMC; Elevations, Details"	*
	4S		No Title - Pressed Steel Building Plan and Elevations	
	5	06-17-30	"Addition for Pressed Steel Department for FMC; North Elevations Details"	*
	6	06-17-30	"Addition for Pressed Steel Department for FMC; 1/4" Elevations, Transformer Details"	*
	6S	10-02-30	"Addition for Pressed Steel Department; FMC; First Floor Framing Plan"	
	7	06-17-30	"Addition for Pressed Steel Department for FMC; Section AA and Roof Details	*
	7S		"Addition for Pressed Steel Department; FMC; Piling, Foundation, and First Floor Framing"	
	8	06-17-30	"Addition for Pressed Steel Department for FMC; Toilet Room Details"	
	99M		"FMC; Long Beach, California; Air Steam Lines"	
	100M	06-18-30	"Assembly Building, FMC; Sprinkler System for Mechanical Work Only" (Plan of Fire Protection)	
1337-R	1		"Plan of Showroom and Lobby" (Details)	
1347-S	S1	03-24-37	"Dock Repairs for FMC" (Elevations Type Dock Reinforcement)	
	100M		"Plan - Sprinkler, Fire"	See 1347-F 100M
1347-T	1S	43-36	"FMC; Reinforcement of Gravity Tank" (Elevation of Tower, Plan of Base and Details)	*
Line 5044	N/A	1982	1982 Map of Ford Motor Company Plant: International Rectifier Corp.; Rachelle Laboratories, Inc., Long Beach, California. JC Fulton, September 1982, Clifton, California	*
Unknown	112		"Cerritos Channel - City Engineers 1974"	
	111		"Cerritos Channel - City Engineers 1982"	
	B-8		"Cerritos Channel - City engineers 1982"	
	Main 200		"General Telephone of California - Main 200"	

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Job No.	Sheet No.	Date	Description	Photo-copied
Unknown (Cont'd)	Main 180		"General Telephone of California - Main 200"	
	Main 2		"General Telephone of California - Main 200"	
	(?)		"Los Angeles Water Department"	
41351	413		"Harbor Sewerage Collection System"	
	413		"Harbor Sewerage Collection System"	
Unknown	D-7-1-96	11-09-81	"Building 1 - A/C Units, Rachelle Laboratories, Inc. 1-12"	
			"Building 1 - A/C Units, Rachelle Laboratories, Inc. 1-12"	
			"Building 1 - Second Floor"	

C. HISTORIC NEGATIVES AND PHOTOGRAPHS

Historic Negatives of the Ford Motor Company Assembly Plant at Long Beach, taken by Lawrence Inman, 1930-1946, and now collected by Historical Society of Long Beach.

Negative Number	Date	Description
F-51	Apr 13, 1930	Body & Cushion line
F-52	Apr 13, 1930	E. side Warehouse & Loading Dock looking north
F-53	Apr 13, 1930	Back Trim Line
F-54	Apr 13, 1930	Paint Circulating System, Oil House
F-58	Apr 13, 1930	Burnoff, Load end of Enamel Oven
F-59	Apr 13, 1930	Chassis Line, looking south
F-60	Apr 13, 1930	Hood Conveyor
F-61	Apr 13, 1930	Body Contruction
F-62	Apr 13, 1930	Frame & Motor Storage Conveyor
F-63	Apr 13, 1930	Hood Dept.
F-64	Apr 13, 1930	Body Storage conveyor

F-65	Apr 13, 1930	Unload Enamel Oven
F-66	Apr 13, 1930	Trim Line & Glass Depts.
F-67	Apr 13, 1930	E. side Loading Dock, Warehouse
F-68	Apr 13, 1930	Polish Conveyor
F-69	Apr 21, 1930	Opening Day, several negatives
F-70	Apr 28, 1930	Warehouse, 1st & 2nd floors
F-74	Jun 14, 1930	Body Storage Conveyors, 3 negatives
F-75	Jun 18, 1930	1st & 2nd floors, Warehouse, 2 negatives
F-76	Jun 24, 1930	Wheel sling on Loading dock, 3 negatives
F-78	Aug 11, 1930	Taylor-Truck-A-Way Trucks & Trailors, 3 negatives
F-83	Sep 12, 1930	Trays Loaded
F-86	Aug 14, 1930	Monorail on S. end of Assembly bldg.
F-87	Nov 17, 1930	Parking lot from roof of Assembly bldg
F-89	Oct 11, 1930	Exterior of plant
F-92	Dec 15, 1930	Pressed Steel Bldg
F-95	Jan 27, 1931	Air compressors in boiler room, 4 negatives
F-99	Dec 27, 1931	Ext. Bonderite Tank, int. Press Steel, 4 negatives
F-102	Mar 26, 1931	Filled-in land
F-103	Mar 27, 1931	Int. Boiler Room to show pipes
F-105	Apr 10, 1931	Unloading steel from Nelson line ship
F-108	Apr 15, 1931	Finished Ext. view Press Steel Bldg.
F-110	Apr 24, 1931	Ext. & int. Pressed Steel Bldg., 3 negatives
F-111	Apr 30, 1931	Barrels & cut for conveyor in door
F-116	May 22, 1931	Int. to show fender crate
F-117	May 27, 1931	Ford Plane & Lincoln grp at airport
F-122	Jun 26, 1931	Visiting Day, many negatives
F-123	Jun 30, 1931	Views of Lunch Wagon
F-124	Jul 9, 1931	Interiors to show Fender Conveyor, 4 negatives
F-126	Jul 21, 1931	Int. showing light testing booth
F-128	Sep, 1931	Line up of Fiesta Fords
F-129	Sep 24, 1931	Plant & adjoining land
F-130	Sep 24, 1931	More Ford for Hoover Dam
F-135	Jan 19, 1932	Int. to show enamel oven burner
F-140	Feb 29, 1932	Interior to show Fender Racks
F-141	Mar 11, 1932	Loading Ford airplane on ship to China
F-142	Mar 29, 1932	Stage & exhibition room at Ford Co., 3 negatives
F-143	Apr 1, 1932	Int. to show car frames, 2 negatives
F-144	Apr 27, 1932	Eddie Peabody with Lincoln & Ford cars
F-146	May 17, 1932	Jack Dempsey with V-8 Ford Coupe
F-159	Dec 22, 1932	Int. to show Archway in Lobby, 2 negatives
F-160	Jan 11, 1933	Int. to show dust in plant from storm
F-161	Mar 18, 1933	Int. to show damage from earthquake, 4 negs

F-166	Feb 18, 1935	Parade & plant shots
F-167	Jan 18, 1935	Unloading cars at dock
F-170	Mar 28, 1935	Ford Radios on truck & freight cars
F-174	Apr 24, 1936	Assembly Line, 2 negatives
F-176	Jun 5, 1936	Conveyor
F-185	Mar 23, 1937	Oil Rigs near assembly plant
F-187	Sep 8, 1937	Air Conditioning equipment
F-191	Mar 3, 1939	N Y World's Fair Model
F-194	May 21, 1939	Employees Picnic at Orange Co.
F-198	Dec 23, 1939	Teletype equipment in office
F-201	Aug 8, 1940	Doug Corrigan & new car
F-207	Jan 4, 1941	Display in Lobby
F-208	Mar 12, 1941	Drying Ovens, 4 negatives
F-217	Dec 11, 1945	First Car Off Assembly Line, 8 negatives
F-219	Mar 8, 1946	Ford Plant
F-221	Mar 20, 1946	Assembling part for cars, 23 negatives
F-223	Apr 9, 1946	Finish line
F-225	May 21, 1946	Frame hoods on Assembly line, 4 negatives
F-228	Aug 8, 1946	Stock & Office, 4 negatives

Additional historic negatives and/or photographs of the Ford Motor Company Long Beach Assembly Plant are on file at the following institutions:

Archives and Library, Henry Ford Musuem and Greenfield Village, P.O. Box 1970, Dearborn, MI 48121-1970.

Ms. Darleen Flaherty, Archivist, Ford industrial Archives, 26305 Glendale, Redford, MI, 48239; (313) 592-2570.

D. INTERVIEWS

Mr. L. W. "Brownie" Brown, Retired Ford Long Beach Accounting, November 11, 1990.
Ms. Karen Clemens, Cultural Heritage Foundation, May 13, 1990.

Mr. Virgil Danforth, Retired Ford Long Beach, Body Operations, November 17, 1990
Mr. Elmer Finn, Construction worker,Long Beach, August 17, 1990.
Ms. Darleen Flaherty, Ford Industrial Archivist, May 23, 1990.
Ms. Zona Gale Forbes, Historical Society, Long Beach, May 12, 1990.
Ms. Linda Huntsman, Harrah Foundation, May 24, 1990.
Dr. Charles Hyde, Professor, Wayne State University, Detriot, Mi,

provided research orientation and references, Aug.14, 1990.
Ms. Ruthann Lehrer, Neighborhood and Historic Preservation Officer, Long Beach.
Mr. Charles Royston, Perry Equipment [Demolition] May ii, 1990.
Ms. Pamela Seager, President, Long Beach Heritage Coalition.
Mr. Louis Skelton, Architect/Preservationist, May 13, 1990.
Mr. Don Thomas, former Ford Long Beach employee, June 6, 1990.

E. PUBLISHED BOOKS AND ARTICLES

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Meyer, Larry L. and Kalayjian, Patricia L. Long Beach: Fortunes Harbor. Tulsa, Okla.: Continental Heritage Press, 1983.

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F. NEWSPAPERS

Included in this section are the names of Newspapers, not dates, pages, or other info. All relevant citations are included in the Footnotes.

Long Beach Independent (LBPL)
Long Beach News (FIA)
Long Beach Press Telegram (LBPL)
Los Angeles Times (LBPL)

G. FOOTNOTES

1. Lois Weinman and Gary Stickel, Los Angeles-Long Beach Harbor Areas, pp. 62-63. The following section has been adapted from the work of Paul Farnsworth which appeared in Paul Farnsworth and Lois Roberts, A National Register Eligibility Assessment of the Ford Motor Company Assembly Plant, Long Beach, California.

2. Charles K. Hyde, Detroit: An Industrial History Guide, pp. 5-7.

3. W. W. Robinson, Long Beach: A Calendar of Events in the Making of a City, p. 11. The following material in this section is adapted from Paul Farnsworth and Lois Roberts, A National Register Eligibility Assessment of the Ford Motor Company Assembly Plant Long Beach, California, pp. 3-1 to 3-5.

4. Weinman and Stickel, Los Angeles-Long Beach Harbor Areas, p. 63, and Larry L. Meyer and Patricia L. Kalayjian, Long Beach: Fortune's Harbor, pp. 37-38.

5. George William Genevro, "A History of Industrial Arts in the Long Beach City Schools: (unpublished Ph.D dissertation, University of California, Los Angeles, 1966) pp. 1-3; Meyer and Kalayjian, Long Beach pp. 39-41.

6. Jack L. Zahniser, Lois Roberts, and Jeanne Munoz, Los Angeles-Long Beach Harbor Areas, p. 18.

7. Weinman and Stickel, Harbor Areas, p. 63 and Meyer and Kalayjian, Long Beach, pp. 41-42.

8. Meyer and Kalayjian, Long Beach, pp. 48-50.

9. Meyer and Kalayjian, Long Beach, pp. 49-56.

10. Weinman and Stickel, Harbor Areas, p. 30.

11. Walter H. Case, A History of Long Beach and Vicinity, pp. 267-268.

12. Meyer and Kalayjian, Long Beach, pp. 64-67.

13. Meyer and Kalayjian, Long Beach, p. 69.

14. Case, History, pp. 8, 12.

15. Meyer and Kalayjian, Long Beach, pp. 59, 72-74.

16. Meyer and Kalayjian, Long Beach, p. 89 and Walter Case, A History of Long Beach, p. 89.

17. Robinson, Long Beach, p. 13 and Weinman and Stickel, Harbor Areas, p. 64.

18. Allan Nevins and Frank Hill, Ford: The Times, the Man, The Company, pp. 22, 73, 86-87, 109-118, 135, 142, 167, 173, 206, and 221. Some passages in this section have been adapted from Paul Farnsworth and Lois Roberts, A National Register Eligibility Assessment of the Ford Motor Company Assembly Plant, Long Beach, California as cited in Long Beach History section.

19. Carol W. Gelderman, "Henry Ford," New Encyclopedia Britannica, p. 404; Nevins, Times, p. 511.

20. Allan Nevins and Frank Ernest Hill, Ford: Expansion and Challenge 1915-1933. All further material in this section upon the history of the Ford Company is drawn from this source, passim.

21. Nevins and Hill, Ford: Expansion and Challenge, pp. 293, 425-427.

22. Nevins and Hill, Challenge, pp. 298, 382.

23. John Caughey, California, pp. 430-432, 448, 450.

24. "Ford Company to Expand L. A. Plant", Southern California Business, January 1923.

25. "Ford Company to Expand."

26. Ford Industrial Archives (FIA), Box 3.

27. Long Beach Press Telegram, June 30, 1926.

28. Zahnizer, Roberts and Munoz, Long Beach Harbor Areas, pp. 6-10

29. Warren A. Beck and David A. Williams, California: A History of the Golden State, pp. 307-311.

30. Interview, Elmer Finn, August 17, 1990.

31. James D. Hart, A Companion to California, pp. 74 and 427.

32. Interview, Elmer Finn, August 17, 1990.

33. Walter H. Case, A History of Long Beach and Vicinity, pp. 349-350, and Press Telegram, June 29, 1926.

34. Long Beach Press Telegram, June 30, 1926.

35. Press Telegram, June 29, 30, 1926. All material above was drawn from these sources.

36. Press Telegram, July, 14, 1926.

37. Press Telegram, September 26, 1926.

38. W. Hawkins Ferry, "Kahn", Dictionary of American Biography (New York: Scribners, Inc., 1973), p. 404.

39. W. Hawkins, The Legacy of Albert Kahn (Detroit: Wayne State University Press, 1970), pp. 10-11 and Carl W. Condit, American Building, p. 242.

40. Ferry, "Kahn", pp. 404-405.

41. Ferry, Legacy of Kahn, pp. 12-15 and Nevins and Hill, Ford: Expansion, p. 317.

42. Letter, Joe Bedway, Public Relations, Albert Kahn Associates to Lois Roberts, Historian, August 6, 1990.

43. Press Telegram, July 25, 1929.

44. Press Telegram, May 9, 1929 and Building Permit, Department of Building and Safety, LBC.

45. Press Telegram, July 25, 1929, December 20, 1929 and Long Beach News, June 1953.

46. Nevins, Ford: Expansion, pp. 570-571.

47. Los Angeles Times, April 21, 1930.

48. "Ford Motor Company, (FMC)" at LBPL, Los Angeles Times, April 21, 1930, Press Telegram, April 21, 1930 and "Ford Motor Company, General", Record Group 200-FC-1498c, National Archives, Washington, D.C. (NA).

49. Press Telegram, September 10, 1990.

50. Long Beach Press Telegram, September 26, 1926 and Los Angeles Times, April 21, 1930.

51. Manuscript report on Long Beach Plant, FIA and Long Beach Press Telegram, March 12, 1950.

52. Nevins and Hill, Ford: Expansion, pp. 578-579, 587-589.

53. Plant Questionnaire, 2-16-32, FIA and Long Beach News, December, 1946.

54. Long Beach News, September, 1947 and January, 1948.

55. Letter, Gregson to Chambers Group, September 5, 1990.

56. Long Beach News, May, 1948, July, 1947, September, 1948, April, 1953, and September, 1955.

57. Manuscript report on the Long Beach Plant, FIA.

58. Letter signed "Sincerely from James W. Harris, Virgil P. Danforth, Dick Colyar, Robert H. Johnson, Grant Gruweil, and L.W. Brown" to the Los Angeles Times, Labor Day, 1990.

59. Long Beach News, January, 1947, November, 1947, October, 1953 and December, 1946 and Manuscript report, FIA.

60. Nevins and Hill, Ford: Expansion, See Chapter VI, "A New Deal for Labor," passim.

61. See the George Bentson Scrap Book, Long Beach Public Library. Benson was Head of the Central Labor Council of Long Beach. Articles useful for this account were clipped from the Long Beach Press Telegram, Long Beach Evening News, and the Los Angeles Examiner, and dated December 2, 1937 through July 1, 1942 passim. Unless documented otherwise, all the data for the following was drawn from Benson's scrapbook.

62. Long Beach Independent, September 19, 1945.

63. Long Beach Independent, April 22, May 4, and December 5, 1946, Interview, Thomas and Long Beach News, , February 1948.

64. Nevins and Hill, Ford: Decline and Rebirth, pp. 302-306.

65. Long Beach News, October, 1947, May, 1948, July, 1948, October, 1948 and March, 1949

66. Long Beach News, March, 1948, May, 1949, May, 1953, Long Beach Independent, November 25, 1946, April 22, 1946.

67. Long Beach News, January, July, 1954, April, 1955 and Long Beach Independent, November 1, 1957.

68. Long Beach Independent, July 26, September 18, 19, and 23, 1958.

69. Long Beach News, 1947-1955, passim.

70. Henry Blunden, Long Beach News, December, 1946 and personal communication by writer.

71. Mel Wharton, "Henry Ford's 36th Child", Southern California Business, June, 1930, pp. 28-29, John M. Staudenmaier, "Comment: Recent Trends in the History of Technology", American Historical Review, June, 1990, pp. 715-725 and David Houndshell, From the American System to Mass Production, 1800-1932, Baltimore, 1984.

72. Wharton, "Ford's 36th Child", pp. 28-29.

73. Wharton, "Ford's 36th Child", pp. 28-29.

74. Wharton, "Ford's 36th Child", pp. 28-29 and Plant Questionnaires 2-16-32 and 4-19-39, FIA. The following four paragraphs are also drawn from these sources.

75. J.K. Frazee, "Press Steel is Big Stuff", Southern California Business, October, 1931, 18-19. The following four paragraphs are also drawn from this source.

76. Plant Layout, March, 1940, FIA.

77. Mel Wharton, Southern California Business, pp. 28-29.

78. Nevins and Hill, Ford: Expansion and Challenge, pp. 573-575.

79. Building Permit, 7-31-30, LBC; and J.K. Frazee, Southern California Business, October, 1931, pp. 18-19. Albert Kahn redrew the 1927 plans for an oil house in November, 1930, and it too was added. It was a separate small building at the southeast corner of the dock facing on the Cerritos Channel.

80. See Albert Kahn drawings, Engineering, LBP.

81. "Ford Motor Company", LBPL.

82. Long Beach News, June, 1953 and Building Permit, 3-28-33, LBC.

83. Nevins and Hill, Decline and Rebirth, pp. 26, 55 and 71, and Drawing, Layout Ford Property & Oil Wells, FIA.

84. Clearly depicted on Layout, Ford Motor Company, Long Beach, June 1940, FIA.

85. Building Permit, 1-9-39, LBC and Photos, FIA.

86. Meyer and Kalayjian, Long Beach: Fortune's Harbor, pp. 104, 122.

87. Ford Layout, 1940, FIA.

88. Long Beach Independent, December 11, 1945.

89. Nevins, Decline and Rebirth, pp. 268-269.

90. Nevins, Decline and Rebirth, p. 324.

91. Long Beach Independent, April 22, 1946, May 4, 1946, December 5, 1946 and Long Beach News, December, 1946, March, 1948. This marked the first issue of this Ford Company Organization.

92. Long Beach News, January 1947.

93. Long Beach News, June and November, 1947 and Building Permit, 6-4-47, LBC.

94. Long Beach News, September and October, 1947.

95. Long Beach News, January, 1948 and March 1948.

96. Long Beach News, March, 1948, June, 1953, and Long Beach Assembly Plant Plot Plan, Plant Engineering, Dearborn, 8-21-51.

97. Long Beach News, May, 1948.

98. Nevins, Ford: Decline and Rebirth, pp. 349-350.

99. Long Beach News, July, 1948, February, 1949.

100. Long Beach, News, September, 1948.

101. Long Beach News, August, 1948.

102. Long Beach Folder, FIA. Mean Low tide was 35 feet, average high tide, 41 feet.

103. For tidal data see Plot Plan, Ford Motor Company, Long Beach, by EGB, 1942/1947, FIA and Memo, A.L. Edwards, Plant Manager to M.L. Wiesmyer, Dearborn, July 22, 1947, LBP.

104. Long Beach News, August, 1948 and Building Permit, 5-24-48, LBC.

105. Long Beach News, August and September, 1948, May, 1949 and Drawings, Bulkhead for Ford Motor Co., 1948 Engineering, LBC.

106. Building Permits, 4-16-52, 5-27-53, 10-30-53 with plot plan, LBC, Drawing, Sheet Pile Bulkhead, Sheet 8, 2-26-53, LBC and letter, Amar to Armour, July 26, 1951.

107. "Ford Long Beach Facts", Long Beach Folder, FIA.

108. Long Beach News, March, 1955, Press Telegram, October 21, 1952 and Ford Assembly Plant, General Information, Ford Motor Company, LBPL.

109. Ford Motor Company, LBPL.

110. Long Beach News, June, 1953 (See picture), Ford Long Beach Assembly Plant Plot Plan, Dearborn, 1951/1955/1958, FIA

111. Photographs, "Ford Motor Company", LBPL.

112. Long Beach News, August, 1955.

113. Long Beach News, January, October, 1954, November, 1955.

114. Long Beach News, 1955 passim, Drawing, Flammable Liquid Unloading Facilities, Engineering, LBC.

115. Long Beach News, January 1954, March, November 1955 and Ford Motor Company, LBPL.

116. Long Beach News, January, July, August, October, 1955.

117. Letter, Amar to Armour, July 30, 1953, LBP. A guarded prediction by the Port Manager here was that the Ford land would sink seventeen feet in the worst case. By 1956 petroleum engineers and scientists believed the subsidence was due to the removal of underground oil pools.

118. Los Angeles Times, January 27, 1956 and "Harbor Fire in Ford Plant", Western City, March 1956, p. 42.

119. Long Beach Independent, February 8, March 1, 20, 22, 1956.

120. For plan see LBC, Engineering; Building Permit, 4-24-56, LBC.

121. See plan, "Sea Wall Extension", 1958, LBC, Engineering and Building Permit, 6-15-59, LBC.

122. Letter, R.W. Settles, Ford Plant Manager to Long Beach Harbor Department, February 25, 1958.

123. Long Beach, Independent, February 23, April 4, November 29, December 2, 1956.

124. Long Beach Independent, February 15, 1958 and Ford Motor Company, LBPL.

125. Long Beach Independent, July 26, 1958.

126. Long Beach Independent, November 27, 1958, March 3, 4 1959. Pico-Rivera is now a predominantly Latino community. An article carried in the Los Angeles Times, on August 16, 1990 described problems with gangs and cruising there. A Pico-Rivera telephone book search for former Long Beach plant employees proved fruitless.

127. Long Beach Independent, March 3, 1959 and Letters: Charles Vickers to Harbor Commissioners, April 8, 1959 and Vickers to R. Powell, Property Management, Ford, April 27, 1959, PLB, Records.

128. Long Beach Independent, August 31, 1959, February 19, 20, 1960.

129. Long Beach Independent, May 28, 1962.

130. Long Beach Independent, May 28, 1962.

131. Building permits, 1960-1970 passim, LBC and Dwg. Ford Property Berths 95-97, 1990. LBP.

132. Field Survey, July 12, 1990, Interview, Stacy Crouch, LBP and Dwg. Ford Property, Berths 95-97, 1990, LBP.

133. On-site Inspection July 12, 1990, Drwgs: Ford Property, Berths 95-97, 1990, LBP and International Rectifier Corp., Rachelle Laboratories, 1981, (see printed on Kahn, 1927 dwg), LBP.

134. Long Beach Press Telegram, June 4, 1990.

135. Long Beach Press Telegram, June 4, 1990.

136. Long Beach Press Telegram, September 10, 1990.

137. See Los Angeles Times, August 19, 1990. Fortunately this article brought out many retirees who then served as informants for this HAER report.

138. Los Angeles Times, September 9, 1990.

139. Long Beach News, February, 1948.

140. "Ford Long Beach Plant Facts", FIA.

141. Long Beach News, February, 1947.

142. Long Beach News, February, April, and September, 1948.

143. Long Beach News, March, 1949; Long Beach Independent, March 12, 1950.

144. Long Beach Independent, July 28, 1958.

145. Long Beach News, August 1948.

146. Robert Lacey, Ford, (Boston: Little Brown Co., 1986), passim.
147. Long Beach News, April 1947.

148. Long Beach News, November 1955 and passim.

149. David Houndshell, From the American System to Mass Production, 1800-1932, (Baltimore, 1984), passim.

150. Gerald White, "California's Other Mineral," Pacific Historical Review, May 1970, pp. 135-154 and Fred Viehe, "Black Gold Suburbs: The Influence of the Extractive Industry on the Suburbanization of Los Angeles, 1890-1930", Journal of Urban Studies, November, 1981, pp. 3-26.

151. White, "California's Other Mineral", Viehe, "Black Gold Suburbs", and Robert Fogelson, The Fragmented Metropolis: Los Angeles, 1850-1930, Cambridge: Harvard University Press, 1967, pp. 128-129.

152. Walton Bean and James Rawls, California: An Interpretive History, New York, McGraw-Hill Book Company, 1988, pp. 216-224.

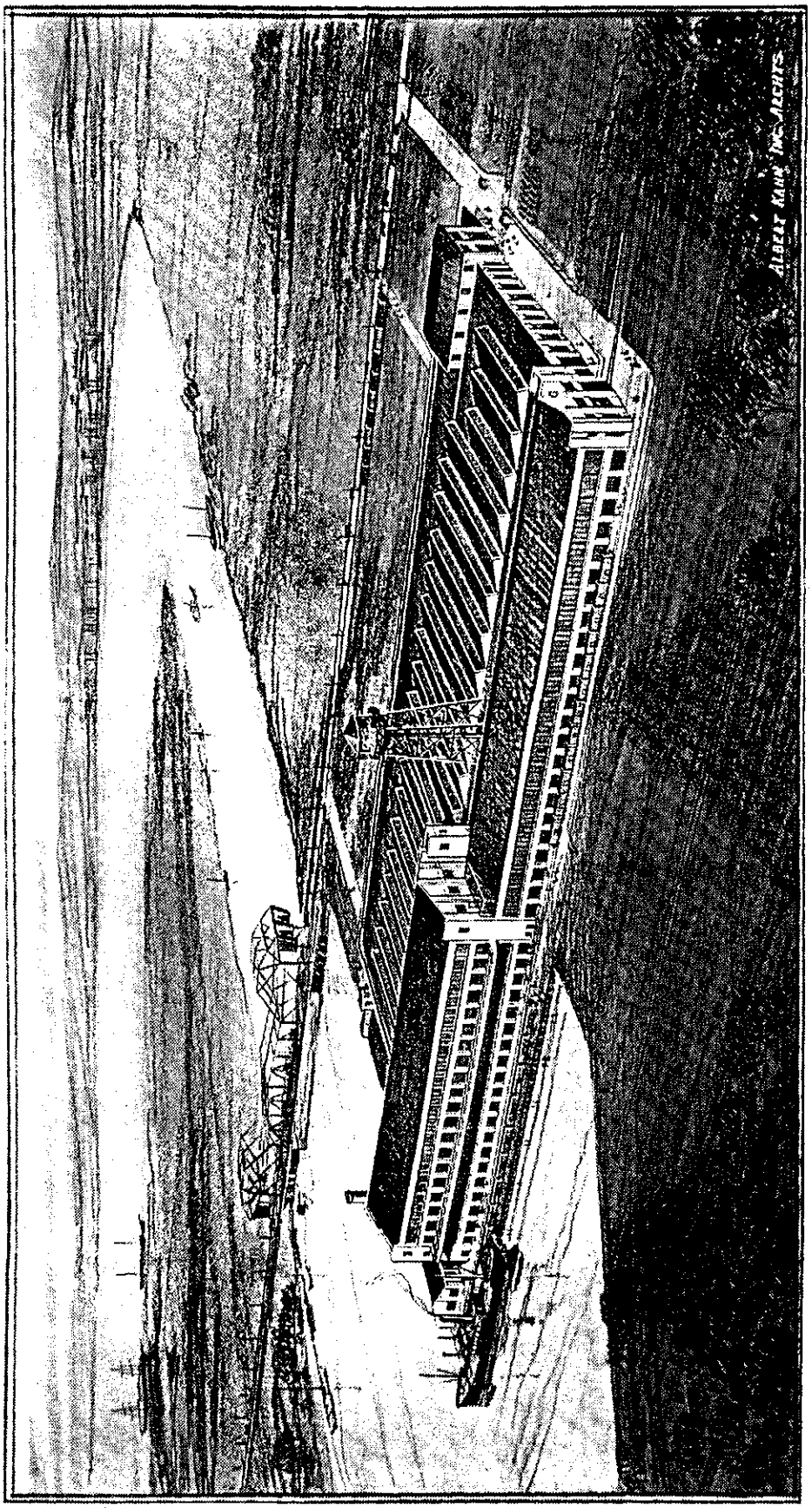
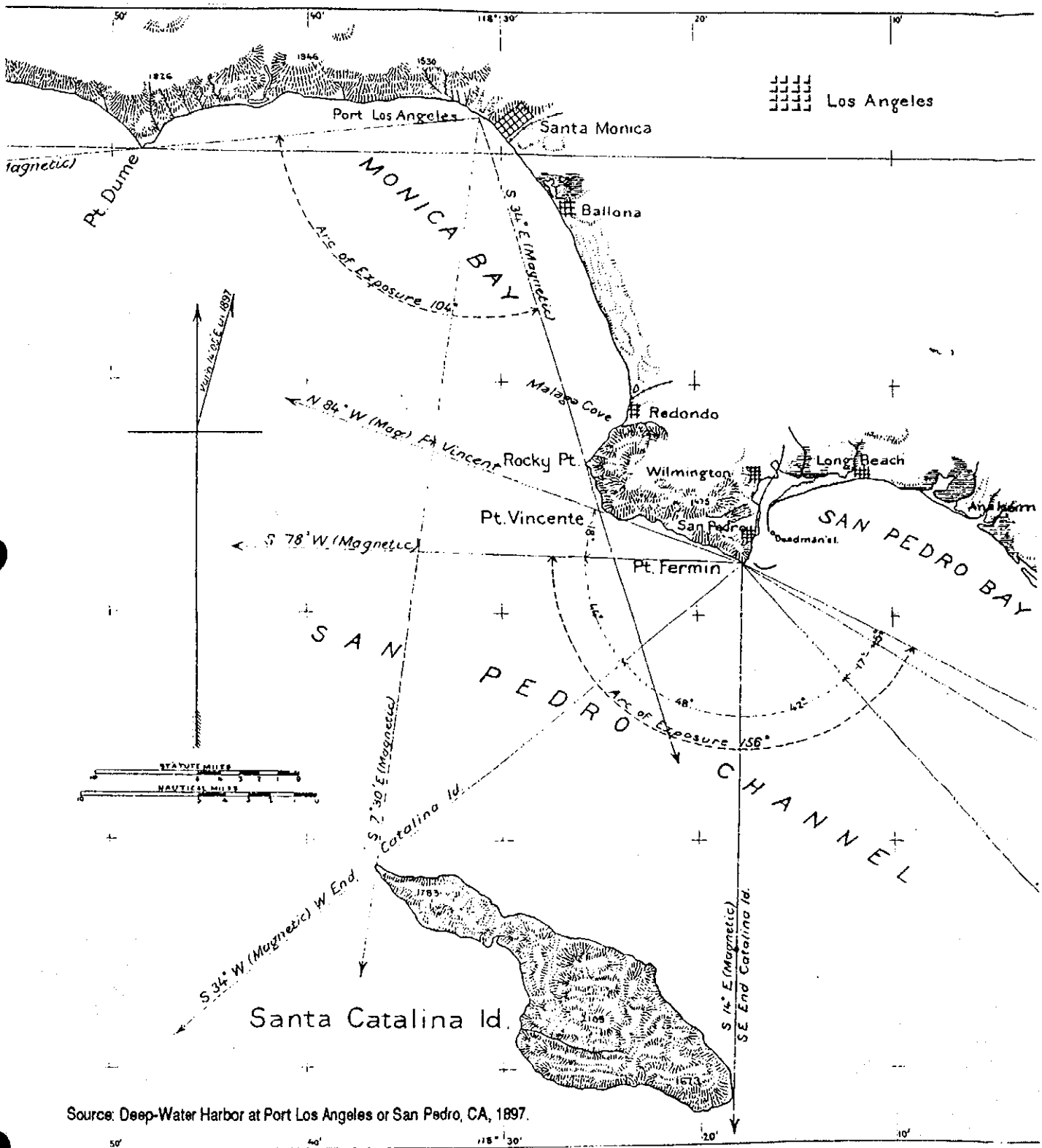
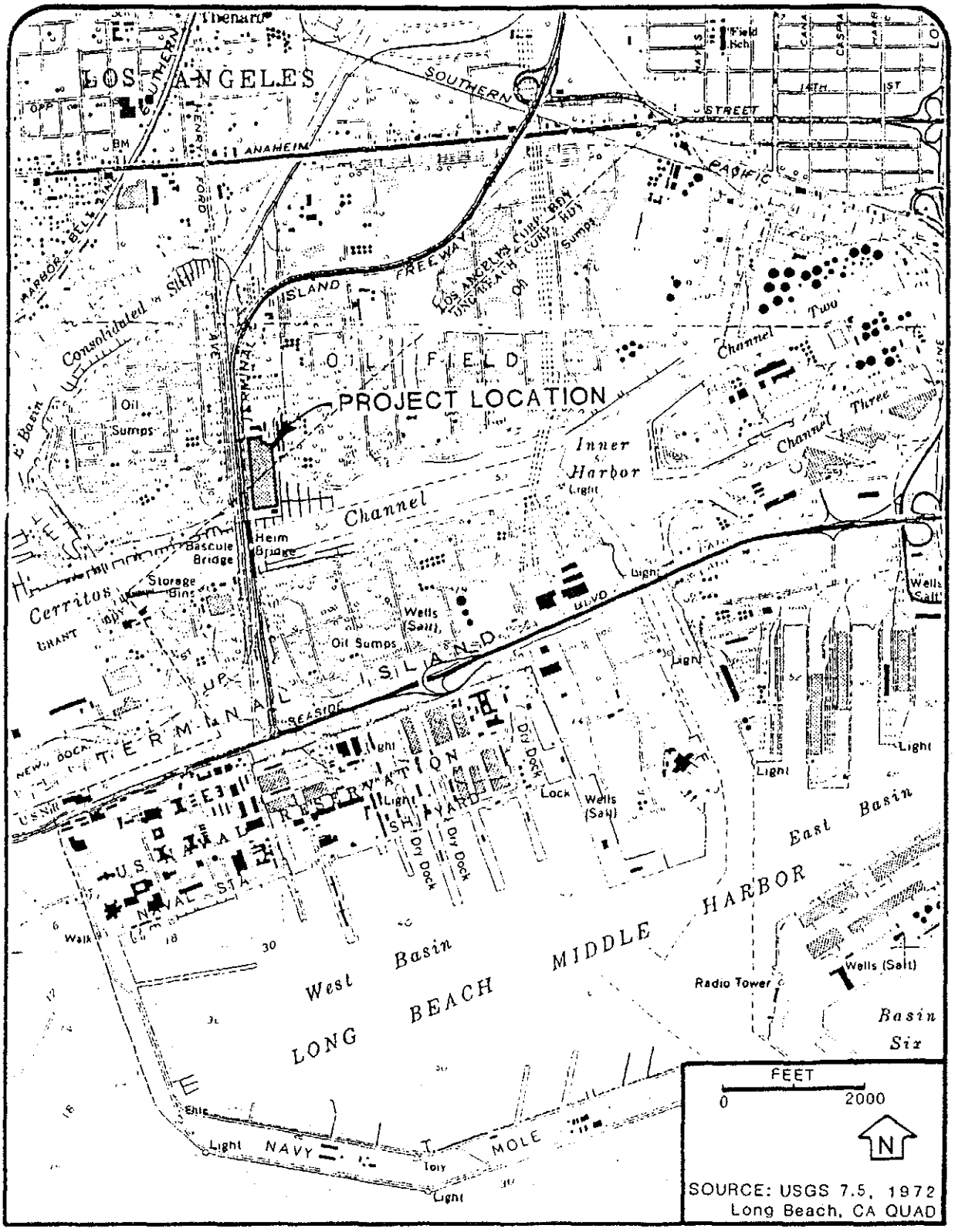


Figure 1. Architects concept of the Ford Motor Company Long Beach Assembly Plant. (Job 1347. A. Kahn Associates, Inc.)



Source: Deep-Water Harbor at Port Los Angeles or San Pedro, CA, 1897.

Figure 2. Map showing the location of the ports of San Pedro, Wilmington and Long Beach.



PROJECT LOCATION

FIGURE 3

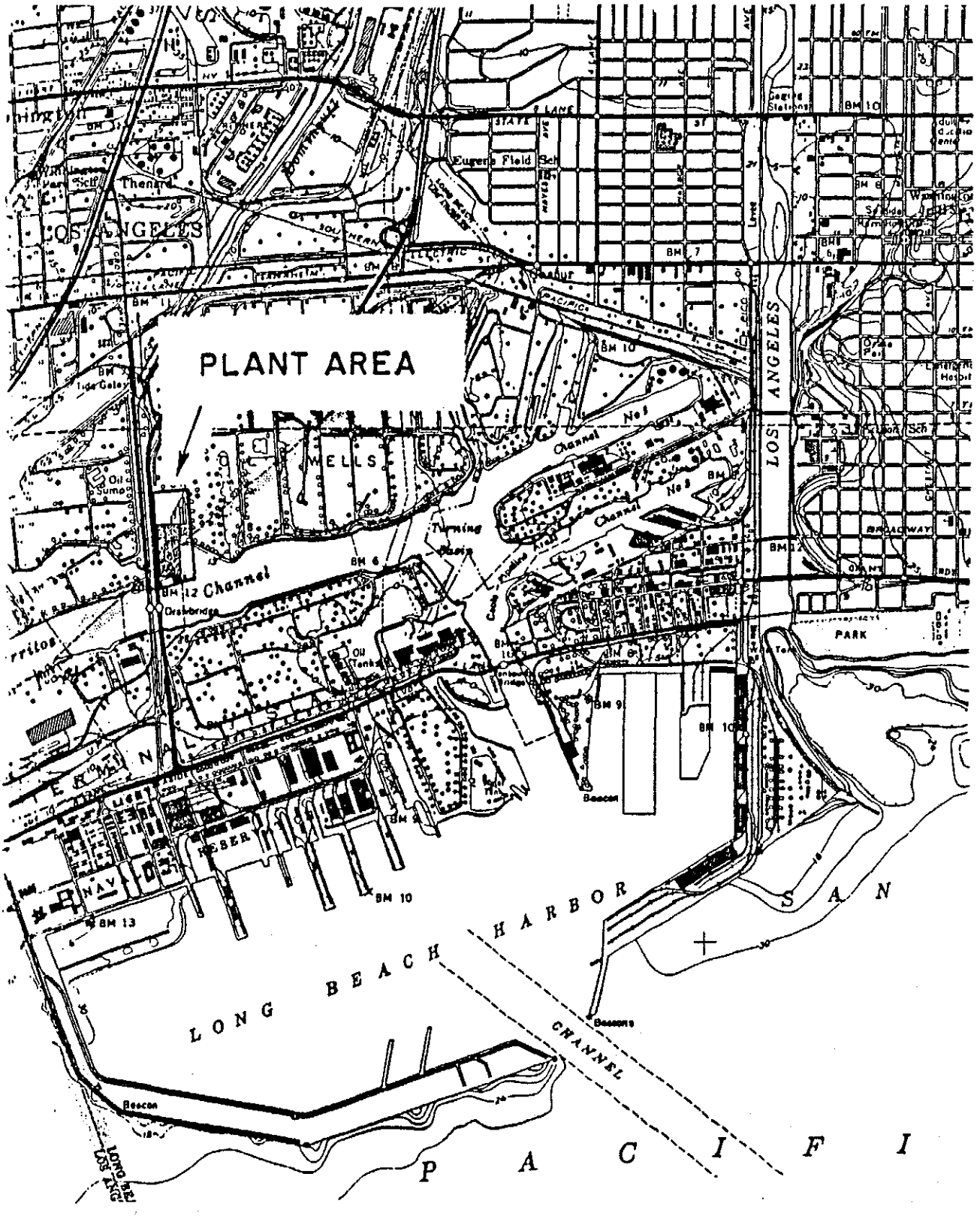


Figure 4a Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

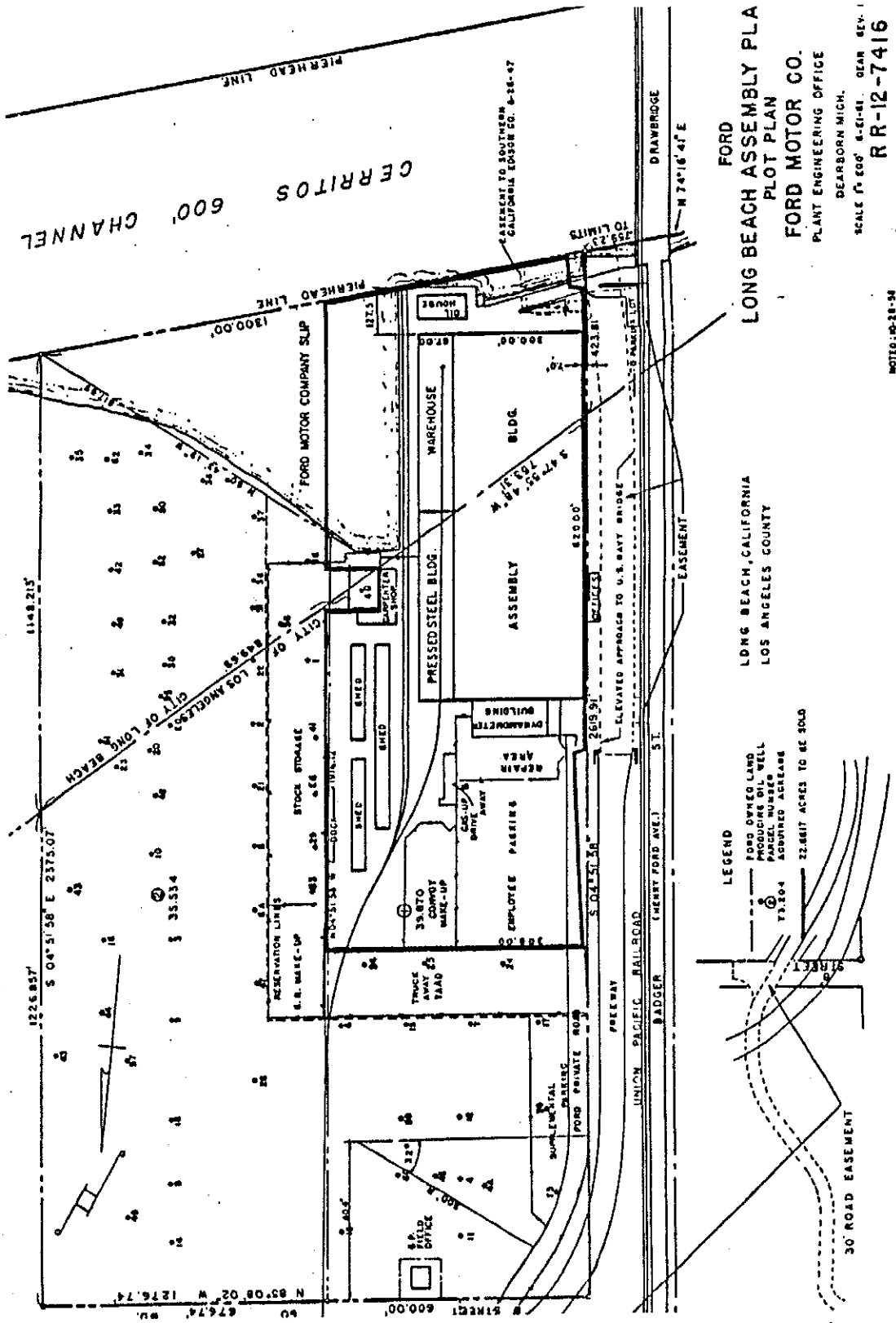


Figure 4b Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

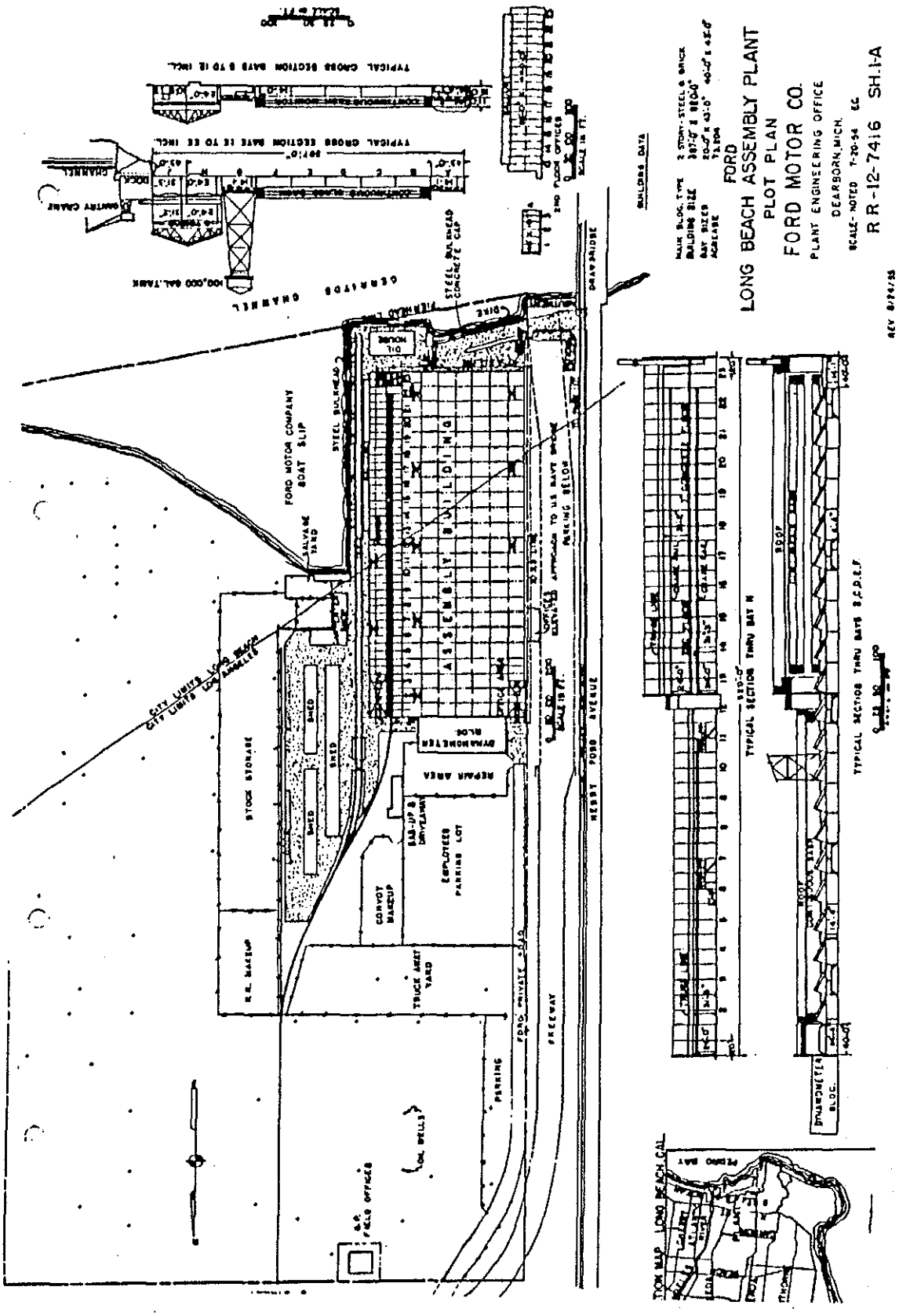


Figure 4c Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

LONG BEACH ASSEMBLY PLANT

LOCATION

Terminal Island Parkway at Cerritas Channel. Partly in Long Beach and partly in Los Angeles.

LAND AREA

(For Sale) 22.5917 Acres.

CONSTRUCTION

Facilities were constructed in 1930.
Assembly Building - One Story brick and steel.
Warehouse - Two Story brick and steel.

BUILDING SIZE

Main Building	387'-0" x 920'-0"
North Extension	100'-0" x 215'-0"

BAY SIZES

Assembly Building	40'-0" x 43'-0"
North Extension	25'-0" x 43'-0"

TRUSS CLEARANCE

Assembly Building	14'-0"
Crane Bay	31'-3"
Pressed Steel Building	31'-3"
North Extension	14'-0" to 16'-0"

FLOOR AREAS

See attached Floor Space Tabulation.

PLANT SERVICES

Elevator

Quantity	One
Capacity	10,000 pounds
Size	10' x 21'

Cranes

Six - Niles Bridge Cranes (5 ton capacity).
Two - Browning Gantry Cranes (20 ton capacity).

Figure 4d Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

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PLANT SERVICES (Cont.)

Sprinkler System

Wet type - covers entire main building.

Electrical

Name of Utility Company - Southern California Edison Company

Available Capacity	5000 KVA
Primary Voltage	12000 V
Distribution Voltage	2400 V
Secondary Distribution Voltage	240 & 480 V
Lighting Voltage	240/120 V

Gas

Natural gas.

Sewage

Storm - City connection.
Sanitary - City connection.

Water

City connection - 100,000 gallon capacity elevated storage tank.

Transportation

Railroad	(Union Pacific (15 under cover spots
Truck	6 spots
Marine	(1 ship berth (Dock is 42' x 690'

BOILER HOUSE

Boilers

Quantity	One
Make	Badenhausen
Type	Water tube
Rating	20000 #/Hour, Continuous
Design Steam Pressure	180 #/sq. in.
Working Steam Pressure	150 #/sq. in.
Fuel	Natural gas
Make of Burner	Forney
Burners per Boiler	2

Figure 4e Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

BOILER HOUSE (Cont.)

Boilers (Cont.)

Quantity	Two
Make	Erie City
Type	Water tube
Rating	20000 #/Hour, Continuous
Design Steam Pressure	180 #/sq. in.
Working Steam Pressure	150 #/sq. in.
Fuel	Natural gas
Make of Burner	Forney
Burners per Boiler	2

Boiler Feed Water Pump & Electric Drive

Quantity	One
Make	Union
Type	Centrifugal
Capacity	100 GPM
Total Head	460 feet
Speed	3450 RPM
Dia. of Suction	3"
Dia. of Discharge	2"
Number of Stages	5

Pump Drive - Electric direct connected:

Make	Westinghouse
Size	25 H.P.
Speed	3450 RPM
Voltage	220 A.C.
Phase	3

Boiler Feed Water Pump & Turbine Drive

Quantity	One
Make	Allis-Chalmers
Type	Centrifugal
Capacity	100 GPM
Total Head	473 feet
Speed	3450 RPM
Dia. of Suction	3"
Dia. of Discharge	2"
Number of Stages	2

Pump Drive - Steam turbine direct connected:

Make	Elliott
Size	25 H.P.

Figure 4f Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

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BOILER HOUSE (Cont.)

Boilers (Cont.)

Speed	3500 RPM
Steam Pressure	150 #/sq. in.
Exhaust Pressure	5 #/sq. in.

STORAGE TANKS

No. of Tanks	Gallon Capacity Each Tank	Total Capacity	Used For
3	6,000	18,000	Gasoline
2		40,000	Fuel Oil
3	5,000	15,000	Motor Oil
12		44,000	Paint, Thinner, Etc.

AIR COMPRESSORS

2 - Two Stage Rotary

Quantity	2 Two stage rotary
Make	Fuller
Capacity	1650 CFM
RPM	600
Motor	350 H.P. 3 phase 440 Volt/600 RPM

Quantity	1 One stage rotary
Make	Fuller
Capacity	1100 CFM
RPM	600
Motor	250 H.P. 3 phase 23000 Volt/600 RPM

TAX INFORMATION (1957-58)

		Assessed Valuation				
Description	Acree	Land	Improvement	Total	Tax Rate	Tax
City of Long Beach (1957-58)	7.9050	61,512	394,170	455,682	13.65	6,220.06
Los Angeles County (Inside City of Long Beach)	7.9050	74,099	343,050	417,149	60.01	25,033.11
Los Angeles County (Outside City of Long Beach)	14.6867	128,994	293,580	422,574	74.077	31,303.01
				Total Tax		62,556.18

Figure 4g Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

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CONDITIONS OF OFFERING

Arrangemente for inspection of the property should he made hy letter, telephone or telegram to:

PROPERTY MANAGEMENT
FORD MOTOR COMPANY
THE AMERICAN ROAD
DEARBORN, MICHIOAN
LUZON 4-7000, EXTENSION 3351

or through YOUR BROKER

The property is offered for direct sale, and delivery of this brochure does not constitute an exclueive listing with any real estate broker. The offering is suhject to prior sale, withdrawal from the market, and changes in price and terms without notice. A hrokerage commiesion will be paid, pursuant to written agreement only, in the event the broker shall have suhmitted an acceptable written offer to purchase the property and the sale shall have been consummated on the basis thereof.

Figure 4h Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

FLOOR SPACE TABULATION

Long Beach Facilities

Building	Adm. Office	Employe Facil. Cafeteria	Factory Office	Operations	TOTAL
Main Assembly Bldg.	16,391	12,192	3,316	405,270	437,169
North Extension			4,284	18,058	22,342
West Extension			1,826		1,826
Oil House (Basement 1560 sq. ft. 1st floor 7104 sq. ft.)				8,664	8,664
Shed "A"				7,900	7,900
Shed "B"			220	18,180	18,400
Shed "C"				9,600	9,600
Shed "D"				11,200	11,200
Other Buildings					
Acetylene Bldg.				349	349
Drive Out Canopy				4,050	4,050
South Guard House				80	80
Drive Out Inspection				108	108
Salvage Yard Sheds				607	607
Pump House				731	731
Final Dress-up Canopy for 57A Model				1,800	1,800
Plt. Eng. Bldg. East Extension			1,000	7,000	8,000
Final Paint Repair				2,322	2,322
Canopies				5,300	5,300
TOTAL	16,391	12,192	10,646	501,219	540,448

Figure 41 Plant Layout and Specifications, ca. 1959 (Long Beach Assembly Plant, Specifications in Offer to Sell, 1959, LBP).

FORD MOTOR COMPANY ASSEMBLY PLANT, LONG BEACH, CALIFORNIA
BUILDING PERMITS

March 12, 1929	Ford Motor Company Automobile Assembly Plant
April 27, 1929	Ford Motor Company Warf and Oil House
July 31, 1930	Ford Motor Company Pressed Steel Building
March 28, 1933	Ford Motor Company repair earthquake damage Clinton Construction Company
January 9, 1939	Ford Motor Company dock repairs Tavares Construction Company
May 24, 1948	Ford Motor Company dike & bulkhead to protect property J. H. Davies
April 16, 1952	Ford Motor Company steel pile bulkhead Ben Gerwick, Inc.
May 27, 1953	Ford Motor Company construct retaining wall Ben C. Gerwick, Inc.
April 24, 1956	Ford Motor Company repair fire damage to oil storage bldgs William J. Moran Company
June 15, 1959	Ford Motor Company extension of sea wall William J. Moran Company

Figure 5 Building Permits for the Ford Motor Company Long Beach Assembly Plant.

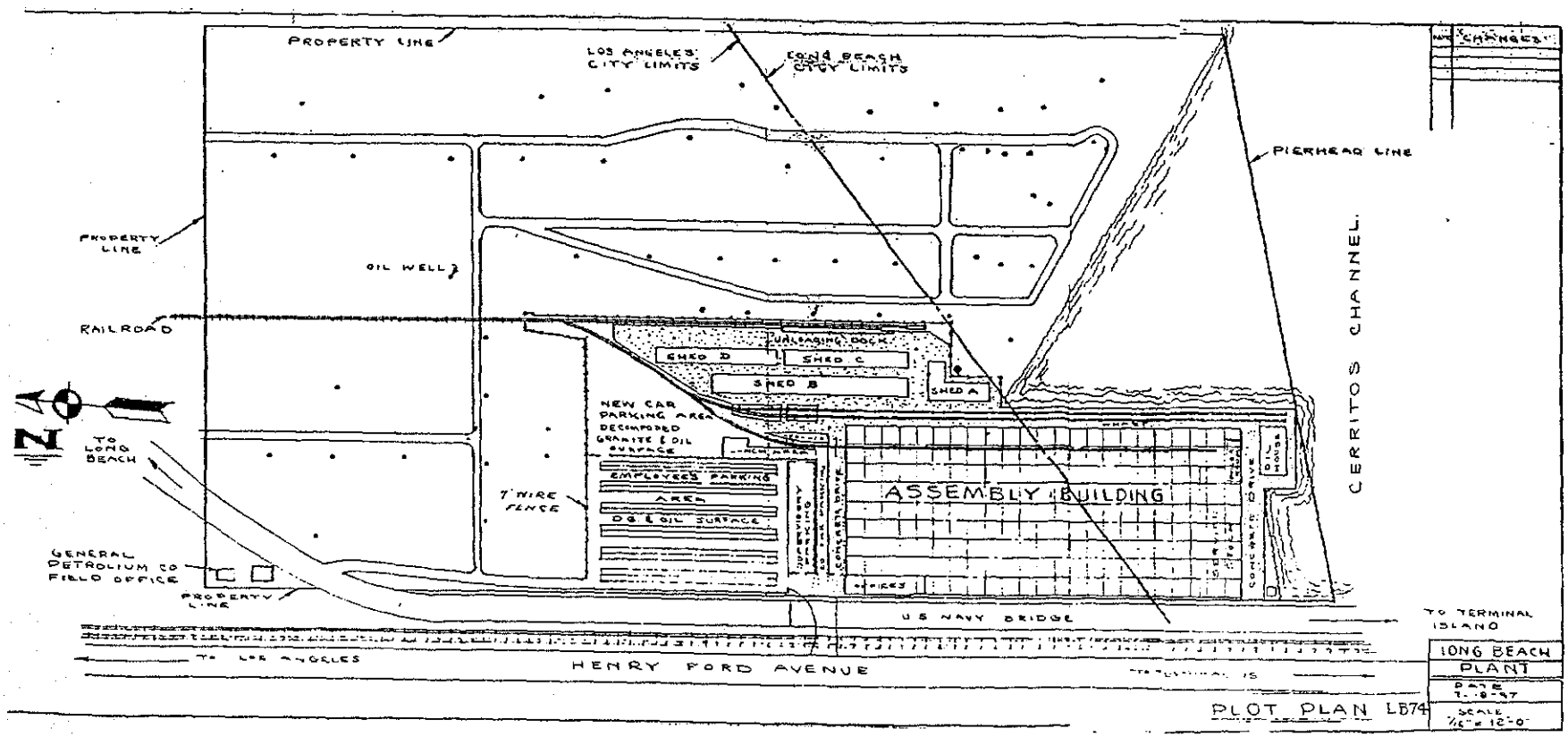

Figure 6 Plot Plan LB 74, Long Beach Plant, 1957, LBP.